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ABSTRACT

This document presents a "Prospectus" in the schools of the 1990s by distinguished educators. These papers were commissioned to provide insight into the demands to be faced by educators in the 1990s and to spur dialogue and exchange among them. The monograph serves as a project resource in the current American Association of Colleges for Teacher Education and the Council of Chief State School Officers effort to facilitate collaborative policy planning by chief state school officers and education deans. The following papers are presented: (1) "Overview of Educational Issues" (Nancy Adelman); (2) "The Schools We Need for the Kids We've Got" (Harold L. Hodgkinson); (3) "Schools for the 21st Century: The Conditions for Invention" (Phillip C. Schlechty); (4) "Ordinary People, Extraordinary Work: Notes on Schoolteaching at the Turn of the Century" (Tom Bird, Lee Shulman, Gary Sykes); and (5) "An Individual-Centered Curriculum" (Howard Gardner). A bibliography on educational reform is included. (JD)

The Schools We've Got,

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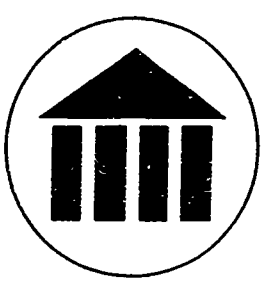

Council of Chief State School Officers

American Association of Colleges for Teacher Education

THE SCHOOLS WE'VE GOT, THE SCHOOLS WE NEED

GUIDE FOR PARTICIPANTS

A Joint Project

of the

AMERICAN ASSOCIATION OF COLLEGES FOR TEACHER EDUCATION

and the

COUNCIL OF CHIEF STATE SCHOOL OFFICERS

Funded by the Exxon Education Foundation

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The Schools We've Got, The Schools We Need

THE SCHOOLS WE'VE GOT, THE SCHOOLS WE NEED, 127 pp., $10.00

Essays on the Schools of the 1990s, by Tom Bird, Lee Shulman, and Gary Sykes; Howard Gardner; Harold Hodgkinson; and Phillip Schlechty

The American Association of Colleges for Teacher Education (AACTE) and the Council of Chief State School Officers (CCSSO) present a "prospectus" on the schools of the 1990s by distinguished educators. These papers were commissioned to provide insight into the demands to be faced by educators in the 1990s and to spur dialogue and exchange among them. The Schools We've Got, the Schools We Need serves as a project resource in the current AACTE-CCSSO effort to facilitate collaborative policy planning by chief state school officers and education deans.

Contents of "The Schools We've Got, the Schools We Need," include:

- **Overview of Educational Issues—Nancy Adelman**, Policy Studies Associates. A current perspective on key issues in education.
- **The Schools We Need for the Kids We've Got—Harold L. Hodgkinson**, American Council on Education. Evolving demographics create ever-changing demands on our schools.
- **Schools for the 21st Century: The Conditions for Invention—Phillip C. Schlechty**, Jefferson County Public Schools/Gheens Professional Development Academy. Applying practical, humanistic management principles at the school and district levels.
- **Ordinary People, Extraordinary Work: Notes on Schoolteaching at the Turn of the Century—Tom Bird, Lee Shulman, Gary Sykes**, Stanford University. Higher education, school administrators, and teachers' organizations working together to foster professional growth and development of teachers.
- **An Individual-Centered Curriculum—Howard Gardner**, Harvard University. Adapting curriculum to unlock potential of all youth.
- A bibliography on educational reform.

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FOREWORD

We are pleased to present this workbook for the grant recipients in the joint AACTE-CCSSO project, "The Schools We've Got, the Schools We Need." This book is intended as a guide and resource in the implementation of state-based activities to bring chief state school officers and education deans together to plan for the schools of the 1990s. These activities are the result of a series of meetings, beginning in 1984, between chiefs and deans, in which they articulated and developed the concept of their "shared mission" in educating our nation's youth. This understanding, as well as the recognition of the broad demographic and socio-economic changes in our country and the challenges to education implicit in these changes, are the cornerstones of the joint project.

The workbook consists of some information on the background and goals of the project, an overview of educational issues, a set of commissioned papers by leading educators on the four critical components of education in the 1990s (students, schools, teachers, and curriculum), a bibliography, and guidelines for designing case studies of state activities.

We are very pleased with the quality of proposals envisioned by the states and are most hopeful about the merit and success of the activities to be inaugurated herewith.

This project has been coordinated by Susan Reinhard of AACTE and Rebecca Yount of CCSSO. Carol Smith of AACTE assumed responsibility for this project upon Susan Reinhard's departure in early 1987. Nancy Magurn, CCSSO, served as the editorial and production coordinator on the workbook, and Nancy Adelman of Policy Studies Associates provided the overview of the issues facing education today.

We would like to express our deepest appreciation to the Exxon Education Foundation and Scott Miller for their leadership and support of this initiative over a period of several years. In addition, we would like to thank the authors of the commissioned papers, Harold L. Hodgkinson; Phillip C. Schlechty; Tom Bird, Lee Shulman, and Gary Sykes working as a team; and Howard Gardner for their insightful contributions to this project.

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THE SCHOOLS WE'VE GOT, THE SCHOOLS WE NEED

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BACKGROUND AND GOALS:

The Schools We've Got, the Schools We Need

The Council of Chief State School Officers (CCSSO) and the American Association of Colleges for Teacher Education (AACTE) in January 1986 launched a joint project to plan for schools of the 1990s. "The Schools We've Got, the Schools We Need" recognizes the sweeping demographic, cultural, and economic changes facing our country and posing challenges for American education in the very near future. This forward-looking project has been funded by the Exxon Education Foundation to bring chief state school officers and education deans together to plan for the unprecedented demands to be faced by schools in the 1990s.

The groundwork for the project was laid in August 1984 when CCSSO and AACTE, with funding from Exxon, brought ten chiefs and ten deans together in a conference in Lincolnshire, Illinois. Here the rationale of collaboration--a sense of a shared mission--between deans and chiefs to improve public education was articulated and nurtured. In particular, the participants recognized the need for increased attention to attraction, preparation, licensing, and retention of teachers by educators in both schools and universities.

The Lincolnshire meeting was followed by the inauguration of the "The Schools We've Got, the Schools We Need" project in January 1986. At this time leading educators (Harold L. Hodgkinson; Phillip Schlechty; Tom Bird, Gary Sykes, and Lee Shulman working as a team; and Howard Gardner) were commissioned to prepare perceptive papers on the four key components of education: students, schools, teachers, and curriculum, to help illuminate the course ahead for schools and teacher preparation institutions. Following discussion and revision of these papers by the authors and project coordinators, they were presented to a group of deans and chiefs at Stanford University in November 1986. At this meeting, plans were refined for the activity phase of the project.

Project Plan

A request for proposals was issued in March 1987 to state departments of education for projects to bring chiefs and deans together to jointly initiate the needed changes in our nation's schools. In June 1987, a blue ribbon committee met to select the winning proposals on a competitive basis. Four states--Illinois, Missouri, New York, and Vermont--and the District of Columbia were awarded $2,000 grants and provided with this workbook to be used as a resource and guide in the pilot implementation projects.

Goals of the Project

As indicated in the request for proposals, "The Schools We've Got, the Schools We Need," is offering a relatively open-ended opportunity and incentive for chief state school officers and education deans to work together. Both the mechanics of the collaboration and the state-level goals of the activities are important. The activities may address any aspect of the four key components of schooling: students, schools, teachers, and curriculum.

The overall goal of "The Schools We've Got, the Schools We Need" is to establish on-going dialogue between chiefs and deans to plan for the schools of the 1990s. Through the five pilot projects, we hope to show that this process can make a difference in planning for tomorrow's schools and serve as a catalyst or stimulus for further activities. In addition, we plan to share what is learned in the experiences of the pilot projects with other states. Important questions to be answered are: How can fruitful working relationships between chiefs and deans be maintained? How can logistical and bureaucratic constraints to chief-dean collaboration be overcome?

Case Study of Pilot Projects

Each participating department of education is required to submit a case study of its project to the Council of Chief State School Officers by January 15, 1988, describing the activities undertaken during the pilot project, their impact, and future related activities. Guidelines for the case study are included in this workbook.

After implementation and feedback on the pilot projects, CCSSO and AACTE anticipate an expanded activity program in 1988 in which grants will be awarded to 10-15 states for more joint planning activites between deans and chiefs. The two organizations further project an active information dissemination program based on what is learned in the activity projects and a capstone conference to assess progress and further needed action.

OVERVIEW OF EDUCATIONAL ISSUES

Nancy E. Adelman
Policy Studies Associates

The Chinese have a saying: "May you live in interesting times." As pleasantries go, this one is definitely double-edged. World War II was an interesting time. So was the Great Depression. Because they pose particular challenges, interesting times may produce creative solutions to complex problems, but the solutions do not come without considerable upheaval and discord. Change has its price.

We are now in the midst of our own interesting times in education. Earlier in this century, the Progressive Era and the post-Sputnik crisis of confidence were both periods of intense public interest in and criticism of American schools, which made the lives of educators very interesting indeed. Will the 1980s and 1990s go down on the record as another landmark era in education? All the signs say yes. Since 1983, the spotlight has been on the schools and the people who teach and learn in them. We have witnessed (and continue to weather) marathon critiques of our secondary schools, microscopic re-examinations of the teaching profession, invidious international comparisons, and muckraking attacks on everything from curriculum content to the moral posture of textbooks. The need for educational reform has been styled a "movement" and embraced by governors, legislators, cabinet members, chief executive officers, university deans, and the general public--in addition to state and local educational administrators, teachers, parents, teacher educators, and researchers. If things got any more interesting, it might be hazardous to our health!

Where do we stand now and where have we yet to go? Has education been "reformed" in any significant sense in the 1980s and will that suffice for the 1990s? Certainly there has been change. In the pages that follow, we outline the principal actions and reactions of the 1980s that provide the context for anticipating the 1990s.

But sometimes, change is an illusion. Metaphorically speaking, we may have merely tightened a few bolts when what is needed is a rebuilt engine. The papers in this volume suggest that ample opportunities for creative thinking and vision remain.

The Context for Education in America: 1987

In 1983, the stinging rhetoric of A Nation at Risk sat us up straight in our seats. According to the National Commission on Excellence in Education, education in America is "being eroded by a rising tide of mediocrity" that amounts to "unthinking, unilateral educational

disarmament." The Commission's evidence included dismal performance-based comparisons between our students and those in other industrialized nations; declining test scores; and complaints from colleges, business and industry, and the military about the basic skill levels of students leaving our high schools.

This report (and the many that followed) allocated responsibility for the situation among teachers, school administrators, institutions of higher education, parents, the general public, and elected officials. These groups, it asserted, must also take responsibility for finding and implementing solutions for the problems. In many quarters, the charge was taken seriously, generating pledges, commitments, and proposals such as those of the Carnegie Forum's Task Force on Teaching, the Holmes Group, and the National Governors' Association.

The seriousness, quality, and breadth of the responses to the initial indictments of American schooling indicate widespread confirmation of the sense of unease that motivated the National Commission's critique. The misgivings reach far beyond concern about the schools. Although the state of the union or the world may not keep most of us up nights, periodic polls and interviews with the "man in the street" over the past five years regularly highlight both our bewilderment and our pessimism about the facts that dominate the nightly news:

- We rank fourth, not first, in quality of living among the industrialized nations.
- Our deficit is upwards of $170 billion. This figure is the equivalent of four million full-time jobs.
- The world's largest bank is no longer Citicorp; it is Daiichi Kangyo Bank of Tokyo.
- We are increasingly an exporter of raw materials and unfinisned products and an importer of finished high-technology goods.
- We are fearful that our children will not attain the material success we have enjoyed.

For certain sectors of the nation, the picture is particularly bleak. Rural, agricultural America is experiencing serious economic difficulty. The Southwest's short-lived economic boom has largely dissolved. Some analysts, including Lester Thurow of MIT, claim that the

technology-based economic upswing in the Northeast is riding on the shoulders of hundreds of low-salaried, low-skill jobs--good for the trade deficit, but bad for individual standards of living and the American dream. Despite gains since the 1950s, minority groups still lack equitable participation in the American economy. According to Census data, the average black family earned 59 percent as much as the average white family during 1979; Hispanic families fared somewhat better at 76 percent of white family income. These gaps widened to 57 percent for blacks and 72 percent for Hispanics during 1984. The unemployment rate for blacks and Hispanics has remained at consistently high levels for the past 15 years.

All of this serves as backdrop for general concern about the schools. Nobody believes that the schools should carry all the blame, nor should they be held responsible for the entire cure. Schools are, however, very definitely part of the answer. Whether the issue is recovering an international equilibrium in trade with foreign markets or preparation for work in an advanced technological society based on a service economy, a literate and informed populace is a prerequisite.

Educational Issues for the (Very Near) Future

When faced with a complex set of issues, the problem is often where to begin. The papers in this volume are designed to focus the reader's attention on four broad areas that are central to present and future schooling: (1) student characteristics; (2) teaching as a profession; (3) curriculum, instruction, and assessment; and (4) the organization and structure of education. Because these are interrelated topics, discussion of one leads to thoughts about the others. While the authors present some facts that are essential in thinking about the future of our schools, their more important function is to introduce ideas and challenges. Ultimately, they question the status quo and encourage us to do likewise.

In the remainder of this overview, we offer some thoughts and questions stimulated by the papers. We suggest that this is the spirit in which they should be read. Nowhere in this volume are panaceas identified. We have sought instead to share some experience-based knowledge, perceptions, and visions.

The Students. Harold L. Hodgkinson gives us an overview of student demographics in the coming decades. He demonstrates that by the year 2000, one-third of all students in American schools will be black, brown, or yellow. To the extent that these children are disproportionately poor, handicapped, or limited in English proficiency, they will present special educational challenges to the schools. This is a reality that many urban areas and the South and Southwest have already experienced. Their expertise should become a resource for other school districts in the

1990s. It is particularly important for educators to be candid about their failures as well as their successes in providing educational services to disadvantaged, limited English-speaking, and handicapped children. We do not have time to reinvent square wheels.

One category--the at-risk student--cuts across all demographic variables. In short, there is some proportion of students who because of pregnancy, substance abuse, boredom or other reasons, are unlikely to complete high school under standard educational conditions. There is no question that urban, minority students with low family incomes and low achievement constitute a large proportion of this group. However, every school district has some disaffected youth and the consequent sense of failure in meeting the needs of all its constituents. We need to seek more creative solutions in this area.

In addition, probably the most universal experience in school systems across the United States in the past decade has been a decline in enrollment. Despite the fact that this demographic trend was predicted, accepted, and planned for, it has consumed tremendous administrative energy, which might have been focused elsewhere, and has forced agonizing decisions about school consolidations and closings, which have divided many communities. National, regional, and state statistics cannot do justice to the acuteness of this problem, nor to its implications for the morale of students, teachers, and families. Its effects must be factored into any equation for school improvement or reform through the 1990s, particularly at the secondary level.

One further thought on students is worth mentioning. In this volume we focus on school-based issues--students, teachers, what and how they learn and teach in institutions with certain kinds of administrative structures. The fact is that nearly all students spend more time in other settings than they do in schools. In an earlier day, the "other setting" was almost always the family. Now, because the configuration of the family has been changing--more single-parent families, more families where both parents are present but working fulltime--there are more players: afterschool programs, day care providers, and live-in housekeepers, for example. These changes suggest the need for a different relationship between home and school than was the norm in previous decades. A parent is not always available to field the call from school about a problem. Meetings of parent-teacher organizations may be far down on the list of priorities for exhausted mothers and fathers. Just as "quality time" between parent and child has become more precious and more planned, so the schools will have to fight for and establish new patterns for quality time that involve the family and the school.

The Teachers. For the most part, the major educational critiques of the 1980s have been tactful about spreading the blame for our educational problems across many sectors. However, teachers have borne the brunt of the criticism. We know that teaching is difficult and all too often occurs without reward or recognition under less than optimum workplace conditions. (Many teachers would consider access to a copy machine or a private telephone to be true luxuries.) We all acknowledge this and frequently make comments such as "I wouldn't teach junior high school for anything." The greatest resolve emerging from the recent analyses seems to be a determination to change and improve the nature of the teaching profession.

"Profession" seems to be the key word here. American students are not the only ones who fare badly in international comparisons. It seems that in other nations--Japan, West Germany, the Soviet Union, for example--teachers are clearly regarded as professionals who enjoy a level of status and respect that they do not have here. The assumption behind the recent proposals to restructure teaching seems to be that the status quo would change if our teachers were worthy of the honors that other societies bestow. They should, therefore, be better prepared, more mature, better supported in the classroom, better paid, and offered clearcut opportunities for professional growth and advancement. In short, the goal is to make teaching a profession, not a job, as recommended by Tom Bird, Lee Shulman, and Gary Sykes.

There is nothing to rebut in this plan for action, the essentials of which are incorporated into both the Holmes Group's charter and the Carnegie Forum's Task Force on Teaching as a Profession. Whether or not we agree with the Holmes Group's idea that teacher education should largely be undertaken at the graduate level and even if we do not subscribe to the Carnegie Forum's notion of national teacher credentialing, we can concur that their efforts will continue to help us clarify our thinking about improving education. We have already come a long way. In 1983, reactions to issues such as teacher testing, merit pay, career ladders, and differentiated staffing were polarized. One either advocated these ideas wholeheartedly or adamantly opposed them. In 1987, we have reached a more realistic point where both sides can rationally assess the strengths and weaknesses of new structures for teaching. By the 1990s, we must find the common ground.

Beginning, however, with an irate parent's dunking of the Hoosier schoolteacher in a schoolhouse well, there is a whole negative history of American teaching to be overcome. We simply lack a tradition of reverence for the schoolteacher. In contrast with other places in the world, teaching in America grew up as a low status profession--first for young men who couldn't handle an ax and later for young ladies in their

pre-marital, pre-family years. Some of this baggage remains. How recently have you encountered the adage that "Those who can, do; those who can't, teach"? Graduate degrees and national credentialing may indeed influence the quality of teaching, but a solid public relations campaign will also be needed to change the image of teaching.

Some educators and policymakers are concerned that the movement to improve the quality of teachers and teaching will be compromised by problems of quantity. The fear is that, if there are not enough qualified teachers, provisional teachers will fill the empty slots, as they traditionally have. Educational researchers are currently debating the issue of teacher shortages. One side forecasts major teacher shortfalls by the 1990s, particularly in elementary education. The other side interprets current figures and projections to the year 2000 to show that the supply of teachers will easily meet the demand. The latter group offers as evidence (1) a recent upward climb in the number of teacher education majors after a decade of decline and (2) the availability of many previously certified teachers who may be prevailed upon to return to the classroom. According to this theory, renewed interest in teaching is, in part, the result of teacher salary increases that are generally larger than current increases in other occupations.

National data on teacher supply and demand are really almost irrelevant. Certainly, some school districts have been experiencing shortages in key areas such as math, science, special education, and vocational education. Staffing classrooms is a local responsibility and the fact is that many localities are finding it necessary to take creative steps to forestall a crisis. Aggressive recruiting through economic incentives, alternate routes to certification, and retraining of experienced teachers for shortage fields are some of the strategies that are being tested. The real issue for the 1990s is whether we can find the numbers of teachers we need without compromising on quality. If the necessity of having a responsible (but not necessarily qualified) adult in every classroom wins out, we will have failed.

A special issue within the topic of teacher supply and demand concerns the number of minority group teachers in our schools. At a time when the proportion of minority group children is increasing, the number of teachers from racial and ethnic minorities is declining. According to recent American Federation of Teachers' estimates, only eight percent of individuals entering teaching today are from minority groups, down from 12 percent in the 1970s. Although good data on the reasons for this situation are lacking, the general perception is that potential minority teachers are opting for better paying, more attractive jobs which were closed to them in earlier times. It is imperative that we make a special effort to attract, prepare, and adequately support many more black and Hispanic educators over the next decade. Creative measures are definitely needed in this arena.

Reforming an entire profession is not an easy task. The interrelated issues are endless, including, for example, induction into the job. The first year of teaching is extremely stressful. Planning for and managing a group of 25-30 students six hours a day is a lot like rubbing your stomach and patting your head. It takes extraordinary coordination. To some extent, the first year is a rite of passage, but there is absolutely no reason for it to resemble running the gauntlet. Many career ladder plans acknowledge the need for better support systems in the early professional period. In fact, some states are experimenting with mandated assistance plans for beginning teachers.

An individual's experiences in the first years of teaching exert a major influence on the decision to remain in teaching. Phillip Schlechty, whose paper on school governance and administration appears in this volume, was one of the first researchers to document the high attrition rate among our best teachers. It is all too common for promising young teachers to leave the profession, either for school administration or for entirely new careers. For many of them, teaching is eventually viewed as a dead-end job.

An historical note is once again appropriate. As our population expanded in the late 1800s and schools grew larger, the function of school administrator, or principal, became necessary. Large and small cities needed superintendents and other central office administrators. Although there were undoubtedly exceptions, by and large the growth of differentiated roles in school systems established a patriarchal system in American education. Administrators were male (except for the home economics coordinator), and teachers were female. Administrators were better educated (bachelor's or above); teachers held two-year normal school degrees. That administrators earned more was at least partly due to the fact that they were male heads of households and not necessarily a reflection of superior qualifications. (In fact, for many years male teachers earned more than equally qualified females for the very same reason.)

Obviously, the old rationales for differentiation between experienced, well-educated teachers and school administrators have long since broken down. A large proportion of teachers hold a master's degree or higher--52 percent of all public schools teachers in 1983, according to the Center for Educational Statistics. Women can and do compete for and earn administrative positions. In that sense, we have made a lot of progress since the 1920s. However, we have maintained the salary differentials between teaching and administration that seem to imply that teaching is a less valuable, less skilled occupation. The outcome, in many cases, is that excellent teachers leave teaching for administration, partly in order to find greater autonomy and opportunities for decision

making, but principally for higher salaries and better working conditions. Do we want this to continue to happen? We need to re-evaluate our reward structure in education and make it feasible for those who love teaching to remain in teaching.

Curriculum and Instruction. In this volume, we include Howard Gardner's paper on the possibilities of an individualized curriculum. The notion of an individual-centered curriculum for every student is a concept that has surfaced many times over the recent decades.

Dr. Gardner suggests that discoveries about the brain and learning styles may hasten this reality. However, it will require considerable revamping of traditional ideas about how the teaching/learning process is structured. To begin with, we may need to abandon the central organizing principle in American education--the age/grade structure. If the curriculum were truly individualized, then pupils would proceed independently of each other at their own rates. What are the implications of such a learning concept for the 1990s?

As we move toward greater individualization of instruction, the role of technology in the schools will become increasingly central. The number of American public schools with computers intended for instruction has grown from 18 percent in 1981 to 96 percent in 1986. Interactive television is another promising educational tool, particularly in rural areas where small schools can expand their educational resources by sharing teachers across the airwaves. The policy questions are: (1) Who will use the available technologies and for what purpose? and (2) Who will train teachers in the use of technologies?

A recent Office of Technology Assessment report on the status of computers in the schools highlights the following points:

- On the average, schools have one computer for every 37 students.
- In general, students in smaller schools have greater access to computers than those in larger schools. This is particularly true at the high school level.
- Students in relatively poor elementary or middle schools have less potential access to computers than those in more affluent schools. At the high school level, this difference disappears.

- Boys and girls are about equally enrolled in elective computer courses at the secondary level.

There remains, however, the issue of how school computers are used. A 1985 Johns Hopkins University survey found that elementary school students, low achieving students at all levels, and students in lower socioeconomic status schools mainly use computers for drill and practice. Even among average or high achieving students in affluent communities, drill and practice constitutes the largest chunk of computer use. The fact is that we have only grasped a corner of the promise that electronic tools hold for instruction. In the 1990s, we must expand and use our knowledge of the many ways in which sophisticated and readily available technological systems can increase student learning. Particularly for the growing numbers of potentially at-risk students, the initial expense of technological adjuncts to human teachers must be carefully weighed against the possibilities for long-term educational and employment gains.

Of course, to take full advantage of the technology available, teachers must be open to and trained in its use. We have already made great strides in this direction. Again according to the Office for Technology Assessment, about 50 percent of all U.S. teachers use computers with their students today--up from 25 percent as recently as 1984-85. About half of these teachers have received 10 or more hours of training--either in-service or from another source. There is still a long way to go, but clearly the interest and willingness to learn is there if the opportunities for training are provided.

The issue of accessibility to technological advances is really a subset of the broader issue of equal access to knowledge. This has been a major focus of several national reports on secondary education.

In the late 1960s and the 1970s, we found a rationale for tracking in the theory of cultural relativism, which led us to the shopping mall high school with its cafeteria-style curriculum and lack of a central core of learning. In the 1980s, we have been frantically backpedaling, trying to regain control through increased graduation requirements and testing programs. Those measures may be part of the answer, but for many students we have yet to satisfactorily explain why we can no longer accept the argument that mainstream education is irrelevant to what he or she is or wants to be. We must find more convincing ways to communicate the importance of a strong foundation of learning to all students.

Nancy E. Adelman

Another issue that increasingly confronts the schools is the question of multiple goals. What are our primary objectives for the approximately 10 years of compulsory education required in this country? Polls of educators, parents, and students yield no consensus. As at least two major reports (Boyer, 1983; Goodlad, 1983) have noted, "We want it all." "All" includes basic skills, higher-order learning, employment skills, civic understanding, social responsibility, and moral guidance.

Over many decades, the pattern has been for the schools to accept whatever new responsibilities a demanding public suggests. The 1980s have been no exception. Instruction in the risks associated with substance abuse and ill-informed, premature sexual activity has been laid squarely in the lap of the schools. Can we do it all? The evidence is not encouraging. As the mission of schooling has enlarged, student achievement levels have dropped. The 1990s may be the time to establish more clearly defined parameters for the role of the school.

This leads directly to a theme explored by Gardner--the concept of multiple instructors. There are many educative alternatives in our society. Because we have not utilized them efficiently in the past does not mean we could not learn to do so in the future. Museums, arts centers, libraries, job training programs, union apprenticeship programs, scholarly associations, business and industry, churches, families, and institutions of higher education are all logical educational partners for the schools. Activities to link natural allies have increased ten-fold in the past five years, but there is considerable room for expansion. The idea is both economically sound and educationally efficient. However, for cooperative or collaborative arrangements to succeed, certain attitudes must be changed. For one thing, the schools must master their defensiveness; it is perfectly acceptable to ask for assistance when one is overwhelmed. For another, some institutions (notably higher education) must learn to swallow their tendency toward a superiority complex. Breaking down these stereotypes may be the greatest challenge in forging alliances.

Finally, there is the issue of evaluating educational outcomes. In the 1970s, emphasis was placed on the unfortunate concept of "minimum competence." The trend was based on good intentions: elected officials sought to provide the taxpayers with evidence that their educational dollars were well spent. Political realities intruded, however, and the upshot was the legislation of state educational assessment instruments that featured mastery of lowest common denominator skills. Within five years, most school districts could train most of their students to pass such tests with flying colors. The problem is that the means for establishing accountability became the ends for education. And they are

very minimum ends indeed. Typical questions on a minimum competency test require students to be able to add, subtract, multiply, and divide whole numbers and use the telephone company's yellow pages. Surely we expect more from our schools?

The Organization and Structure of Education. There are many interlocking themes in education. For that reason, several of the issues suggested by this heading have already been alluded to in the previous discussion: new students, new roles for teachers, and accountability, for example.

Schlechty's paper argues for a "fundamental restructuring" of public education, utilizing business management theory with a particular emphasis on long-range planning. Most public school districts face change that must be accomplished using fairly finite and restricted resources. Forward financial planning, a standard procedure in business and industry, makes a lot of sense. It can force school boards, central administrators, and taxpayers to focus on those goals of education that are most important. It also encourages districts to evaluate their educational commitments in relation to their fiscal realities with enough lead time for lining up additional resources if they are needed.

In Schlechty's proposed reorganization, the buck stops with the superintendent and school board. Principals are "leaders of leaders" with a kind of superordinate perspective on what happens in multiple classrooms. Teachers are manager/leaders within their circumscribed domains of classroom and school. This flowchart institutionalizes the idea of principal as instructional leader rather than paper pusher (a cornerstone of the effective schools movement) and has the flexibility to incorporate growing levels of teacher responsibility and autonomy as the teaching profession is gradually reformed. It is, in short, accountable and responsive to the current ideas about new role definitions that are likely to remain on the educational agenda well into the 1990s.

If significant innovations in the organizational and administrative structure of schools are adopted, we must be well-prepared to evaluate the outcomes. How will we know if the new is an improvement over the old? Evaluation in education has always been a difficult task, and far too often has been an afterthought. Causes and effects get easily muddled. Control groups are often difficult to define. Human factors impinge everywhere. If we are serious about testing new structures in the 1990s, let's agree to plan for stringent but fair evaluations. This means, among other things, allowing sufficient time for implementation and provision for significant formative evaluation that encourages adaptations to local contexts.

Schlechty makes a point that is perhaps the most important one of all for implementing and assessing school improvement: in complex organizations such as school systems, businesses, hospitals, or governments, problems are the norm. Granted, there are brushfires and forest fires, but it would be an abnormal week when some significant problem did not crop up. For the schools, brushfires have a tendency to become community-threatening conflagrations. We need a policy for determining what is newsworthy and worthy of public debate and what should be considered routine, administrative troubleshooting. This will leave us more time to get on with the really important business of improving teaching and learning.

Conclusion

For an enterprise as vast and as intimately connected to grassroots America as the public schools, any time is potentially an interesting time. Crises come and crises go. Sometimes they involve individual schools, sometimes whole school districts, sometimes entire states. Rarely, in our federal system, have they attained national stature, but times are changing. The issues we now confront are not confined to New York or California, Minnesota or Mississippi. It is America's place i the world that is on the line. Every region is counting on a well educated, well-trained new generation to bring us back to international pre-eminence. But the new generation can't do it without us because we are the teachers and the decision makers. It is a great responsibility.

The authors of the papers in this volume collectively exhort educational leaders to confront the educational issues that the 1990s pose: changing demographics, the restructuring of the teaching profession, what and how children learn, and the reconstituting of the total administrative structure of education. They are not offering formulas or panaceas. Rather, they suggest that alternative ideas exist for thinking about the problems we face. In the end, local and state educators will make the decisions. Those decisions should be grounded in a thorough examination of the options. This book is a place to begin.

THE SCHOOLS WE NEED FOR THE KIDS WE'VE GOT

Harold L. Hodgkinson
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The thesis of this paper is a simple one: as we think about the schools of the future, we must realize that the students who will be taught in them represent a drastically different group from the students of today. We need to think of schools in terms of their ability to educate students with a greater variety of backgrounds, languages, values, and abilities than ever before. The implications for teacher education are striking, if not staggering.

A Population Primer

Let's begin by looking at the evidence of major demographic changes in the "youth force" in the U.S. As many governors have discovered, the elementary school population is one of the best predictors of the future adult population of a state. This is because kids all have one common tendency--they grow up, (a simple trick that many of us have learned), and by doing so, they become the future adult population of that state, neglecting in-and-out migration. Why are people predicting that California, our largest state (one out of nine Americans is a Californian) will have a "minority majority" by 2005? Because a majority of California elementary school students are minorities today. No economist can predict the GNP for the year 2000 with the characteristic accuracy of demographic projections, referred to by economist Kenneth Boulding as "the celestial mechanics of the social sciences." The information will be presented in terms of four major concepts: fertility, age, region and race. Later, we will pull this information together to look at the implications for tomorrow's schools.

Fertility

One of the simplest yet most effective ideas in demography is that those people who have more children will be over-represented in the next generation; those who have fewer children will be under-represented. Many other nations are wrestling with these changes as well as the U.S.:

- West Germany, as of September 1986, extended its military tour of duty for draftees from 15 to 18 months. This was done because of a 20-year long decline in births in West Germany, producing a 50%

decline in 18-year-olds, from 300,000 in 1970 to 153,000 in 1994. There is not a lot one can do, retroactively, about a 20-year drop in birth rate. Wars are fought with the young men on hand.

- Israel, a nation of about three million Jews and two million Arabs, has a birth rate of three Arab children born for every two Jewish children, leading to projections of an Israeli army made up largely of Arabs in a decade or so.

- In the Soviet Union, the Russian birth rate is only one-sixth that of Soviet Muslims, who will soon make up 50% of Soviet youth. (The fact is that Soviet Muslims in the Uzbek don't even like Russians much, a fact that is not lost on Soviet military leaders.)

- All of the NATO nations have had major declines in birth rates in the last decade. As a result, "The West," which was 30% of the world's population in 1900, is 14% today, moving down to 9% by 2010. Can we lead the world if we are only 9% of the world's population? What does this mean for intercultural understanding and the future of democratic pluralism?

In this context, fertility behavior in the U.S. may be more understandable. Generally, women must produce 2.1 children each for a population to be stable--two to replace Mom and Dad, and .1 to cover infant mortality. Currently in the U.S.,

- Mexican-Americans produce 2.9 children per female.

- Blacks produce 2.4 children per female.

- Puerto Ricans produce 2.1 children per female.

- Whites produce 1.7 children per female.

- Cubans produce 1.3 children per female.

If one adds immigration to this data (14 million immigrants in the U.S. from South America and Asia), one comes to a clear conclusion--the future of the U.S.--its youth, will be inexorably more Asian, more Hispanic (but not Cuban), more black and less white. We can't plan schools for tomorrow without thinking hard about this.

We also need to point out that fertility changes--slowly--through time. During the 1945-1964 period, we hatched 70 million children due to a white birth rate of 2.9, the current Mexican-American rate. The reasons for birth rate shifts are not entirely known, but basically, Western nations have had a declining birth rate for about twenty years.

The "Baby Boomlet" children produced by the 70 million Baby Boomers has been a true fizzle, as marriage and family decisions are deferred into the late 30s by many Baby Boomers. Single people living alone do not produce many children, and we have an epidemic of singles of marriageable age. Given the number of women in the childbearing years, we should be in the middle of a second major Baby Boom, but because a majority of women are in the work force, and because the number of children they expect to have (a pretty good predictor) has declined from four kids per female to under two, it is unlikely that women will return to the hearth in droves, give up paid employment, and find their life mission in the production of reams of children. In other words, it is unclear at the moment what would be necessary to cause the family of the Norman Rockwell paintings to re-emerge. (Families with a working father, housewife mother, and two school-age kids now constitute only 4% of the U.S. households.)

But because of the huge number of women in the child-bearing years, there has been a small increase in births over the last six years, which is producing some increase in early elementary school enrollments. However, these increases are not distributed evenly in the U.S. Seventy-three percent of the increase in kids age one to six is in only five states--Texas, California, Florida, North Carolina, and Arizona. (Needless to say, these are five big states with very large minority birth rates.) The "Boomlet" also is unevenly distributed by region. From 1980-84, kids under five years of age increased 9% nationally, but only 2% in the midwest, 5% in the Northeast, 11% in the South, and 17% in the West. Obviously, it is in the South and West that minority populations are most heavily concentrated, and the heaviest growth is in the five states mentioned, all of them in the South and West.

A second major fertility trend concerns the increasing number of children raised by single parents, overwhelmingly women, most with no major job skills, and no access to training. ("Displaced homemakers" programs are often very effective but are politically volatile and neither well located nor supported.) It is of major importance to

educators that the number of children below the poverty line has had an endemic increase in the decade. Currently, 24% of kids are below the poverty line--the chances of a child's being poor are six times greater than an elderly person. The fertility trends that encourage the birth of children in poverty are very difficult to change. Most of the "new poverty" among youth is the result of having a single parent.

A third trend has to do with the increased number of children with physical and emotional handicaps. Although the national data are still sketchy, it does appear that handicapped children are on the increase in both numbers and proportion. Factors that account for this are (1) the increased mainstreaming of handicapped students in high schools and colleges, (2) increased survival of severely premature babies who have a 40% chance of permanent damage that will inhibit learning, and (3) the increased patterns of family instability that probaby increase the tendency for emotional problems to occur. (Teen suicide continues to be a baffling phenomenon, as the factors which lead to it are tragically hard to isolate.)

We have indicated that an increase has occurred in minority children, in poor children, and (probably) in physically and emotionally handicapped children. Why have these increases appeared to be so spectacular? It is because of one pervasive phenomenon, unmentioned by all of the 40 or so commission reports on the status of public education--the major decline in fertility among the white middle class. This one factors explains more of what is going on than any other. If white birth rates were still at 2.9 children per female, as they were during the Baby Boom, there would be no proportionate increase in minority children, except through immigration. The major factor is the white middle class decline in fertility. What would cause a major increase in white middle class fertility? No one knows, yet in the U.S., France, England, or West Germany, it is a common situation.

Age

Our country is aging very rapidly. Thirty-four thousand (34,000) citizens are over 100 years of age, 2.2 million are over 85 (and half of them voted in the 1984 Presidential election), and 24 million are over 65. The most rapidly growing age group in America is people over 85. We are now approaching equality regarding youth and aged

dependents--for the first time in our history, a young woman will spend as many years taking care of a dependent parent as she will taking care of a dependent child. In 1983, we crossed a major watershed in the U.S.--we had, for the first time, more people over 65 than we had teenagers. The consequences for education will be important. Dependent youth need expensive educational services; dependent elderly need expensive medical services.

Sixty-five year olds have completed their own education and that of their children. Their interest in educational issues may have little do with their own perceived self-interest. The possibility exists, especially in Florida and in the Midwest where the youth proportion is declining drastically, of a generational conflict over the allocation of very limited resources. It is hard to imagine the kids winning this competition, as the elderly vote and the kids don't. Much of this will depend on what kind of parents Baby Boomers will make, and it is too early to tell that. (Indeed, large numbers of them are destined not to become parents at all!)

One can easily imagine a series of "trade-offs" developing in terms of these two dependencies: AFDC (Aid to Families with Dependent Children) is unquestionably a useful federal program, but APDE (Aid to Parents with Dependent Elderly) would have a major advantage in terms of saving money by helping people to care for elderly persons in the home setting. And how would even Head Start, that amazingly successful federal effort, fare when in competition with medical care for the elderly? We are not used to seeing these as trade-offs, but that may well become the norm, as concerns of the elderly increase in our aging society.

Parenthetically, age remains one of the major ways in which we separate people. Virtually all of our commerce is age-graded, not to mention our housing. Our stereotypes about the "elderly" will need a lot of revising, as more and more people reach into the 70s and beyond in excellent health, with energy and mental alertness. President Reagan is just one example of the "Young Elderly" in their mid-seventies who do things that would have been too much for the 55-year-olds of a decade or so ago. The big social issue is how we can provide useful outlets for this energy and trained intellect. Education will play some role in that great debate but thus far has not played a leadership role.

Region

Different parts of our country are becoming more unlike, in important ways. For example, consider federal policies that would have equal value in various states in view of school enrollment trends:

School Enrollment Trends, 1970-72

	1970	1982	Percent change
U.S. Total			
K-12	45,909,000	39,643,000	-13.6
9-12	13,332,000	12,501,000	-6.2
K-8	32,577,000	27,143,000	-16.7
Maryland			
K-12	916,000	699,000	-23.7
9-12	252,000	237,000	- 6
K-8	664,000	462,000	-30
Arizona			
K-12	440,000	510,000	+15.9
9-12	126,000	151,000	+19.8
K-8	314,000	359,000	+14.3

It is clear that a policy which benefits Arizona will be questionable in Maryland, at least as of 1982. (And remember that in a state like California, most of the system is still declining while there is a major increase in early elementary registrations which will work their way through the entire system, kindergarten through graduate school. This increase is characterized by a rapid decline in non-Latino Caucasians, and big increases in Asian-American students, not due to high birth rate, but through immigration and a remarkable ability to stay in school and do well.)

Different regions of the country reflect very different population densities: the Eastern time zone contains 50% of our 238 million people; the Central zone has 30%. The Mountain zone has only 5% of the people (although it gets a lot of media coverage for its "growth"), while the Western zone is 15% of the people, heavily concentrated in California. When we read of the population

"explosion" of 36% in Wyoming, we need to remember that the actual number of new people is about what you'd find in a single city block in Newark. We continue to be a nation dominated by Eastern regional values and densities.

As we look more analytically at the region, we see that regions with unused school capacity (mostly the Midwest and parts of the Northeast) also have very rapidly increasing elderly populations, especially in the Midwest. This suggests the possibility of conversion of school plants to other community uses, with the option of converting these sites back to schools should the need arise. "Community holding companies" are now allowing municipalities to maintain properties while altering their use, much cheaper than selling them and then rebuilding them in a decade. Given that we will need to build an enormous number of facilities for the elderly if we cannot convert existing buildings, this strategy might help to ameliorate the generational conflict, especially in the midwest.

We also need to see how regions affect educational performance. If we look at states with the highest levels of retention of youth to high school graduation, compared with regions with the lowest, some interesting patterns appear:

States with highest levels of retention to high school graduation

		Percentage
1.	Minnesota	86
2.	North Dakota	84.9
3.	Iowa	84.8
4.	South Dakota	82.8
5.	Wisconsin	82.3
6.	Nebraska	81.3
7.	Montana	80.9
8.	Kansas	80.5
9.	Utah	80.2
10.	Wyoming	80.0

States with lowest levels of retention to high school graduation

	Percentage
41. California	68
42. Kentucky	67.3
43. Alabama	67.1
44. North Carolina	67.1
45. Tennessee	66.7
46. New York	65.9
47. Georgia	64.3
48. Florida	63.7
49. Louisiana	63.4
50. Mississippi	61.8

Does this mean that the top ten states have better teachers, more money per student, etc? Definitely not. It does mean that they have small cities and towns, few ghettos, and little ethnic diversity. (They also tend to have small schools and small classes, which may still account for better retention.) And because most of the high retention states are in the Midwest, an area of very low fertility, they will be an even smaller part of the national scene in years to come. There are also some anomalies like Pennsylvania, which should rank near New York in terms of state characteristics like big cities and ethnic diversity, yet Pennyslvania is a surprising thirteenth in the rankings. No one has ever explained this to me in a rational way.

Just as national views mask regional differences, regional views can mask state differences, and state views can conceal large community differences. We need to pick the best perspective for the task at hand. (Comparisons of state or regional SAT scores in order to see which state is "best" is a prime example of a misuse of data. I would also argue that national monitoring of SAT averages is the worst barometer of public school performance we could possibly imagine.)

Race and Immigration

It is important to consider these two categories together, as immigration is one of the major routes through which minorities are increasing their presence in the nation. In the 1920s, we had about 14 million immigrants in the U.S., virtually all from Europe. In the 1980s, we have more than 14 million immigrants, and 80% of them are

equally from South America and Asia. The 1920s immigration was basically replicating and expanding a previous group already in place. Our immigration, however represents new values, new cultures, new opportunities and new tensions. During the celebration of the Statue of Liberty in summer, 1986, it became clear to many people that she faces the wrong way. She beckons to Europe, not to South America or Asia. Indeed, as of fall, 1986, a campaign is underway in California to develop a suitable symbol for the new immigrants of the 1980s.

The new immigrants are amazingly diverse. Some have no formal education, although one of three adult Asian immigrants has a college degree. The cultural diversity is also vast--our handy use of "Asian-American" ignores the conflicts between Korean and Japanese, just as "Hispanic" misses the problems of Puerto Ricans and Chicanos working together. The educational system--all of it-- will have to learn to work with these new pluralities. Immigration represents a major portion of the change in youth numbers--without immigration, our overall population would have declined during the last decade. It is likely that immigration will continue at a high level, as long as repression continues in Asia and South America. Remember that today, two-thirds of the world's immigration is coming to the United States.

1986 may go down as the year in which we discovered minority middle classes. Previously, "black" meant "poor" almost automatically. Today, there is clear evidence that blacks have moved to the suburbs, are owning their own homes, and have income levels that would have been impossible in the 1950s. One of the problems with the ghettos of today is that the bright and energetic have, to a large degree, been able to leave. The social programs of the sixties have been roundly criticized because poverty still exists, while the fact is that they accomplished their mission of allowing those with energy and brains to leave the ghetto. The remainder is a formidable challenge to any educational system.

But Hispanics, blacks, and Asian-Americans are all beginning to develop more small businesses and enter politics, the two classic paths to "making it" in America. Hispanics are now a major market, consuming about $70 billion a year, with 30,000 members of the Hispanic Chamber of Commerce. In California, the average Asian-American worker makes more than the average non-Latino Caucasian.

Whatever "middle class" means, it must include the values of (1) a strong and supportive home environment, (2) the expectation that the children will do better than the parents, and (3) education as the vehicle whereby this will come about. In the earlier immigration waves, the Jewish children were the ones who worked harder and did better in school and college. Today, Asian-Americans have become the "new Jews." Their educational participation and success rates are phenomenal. Enrollment at the very prestigious Peter Stuyvesant High School in New York was more than 30% Asian-American last year. In California, the Asian population is growing more rapidly than in New York. For the country as a whole, the Population Reference Bureau reported the following high school completion rates as of 1985:

High School Completion Rates as of 1985

Japanese-American	96%
Chinese-American	90%
Filipino	89%
Korean-Indian	94%
Vietnamese	76%
White	87%
Black	74%

In terms of college attendance:

Chinese	60%
Japanese	48%
Vietnamese	42%
Korean	40%
Filipino	27%

The college teachers of tomorrow will be recruited from the graduate students of today, and that means whites and Asian-Americans, given the fact that black and Hispanic college-going rates are decining. Black participation in graduate school study is actually declining, and Hispanic rates were always very low. Graduate work in arts and sciences is seen as a "white person's toy," not designed to get one quickly into either wealth or high status. Unfortunately, neither black, Asian, nor Hispanic students have seen public school teaching as an appealing career. We will return to this theme later.

There is one route to upward mobility which has been very successful for blacks, and that is military service, particularly in the army. In 1982, there were 76 black generals and admirals in U.S. service, almost all of them generals. For very talented black leaders, the army has provided a path to real leadership unmatched by academe and corporate life. (Counting the black faces in the officers' club and in the faculty club should make the point.) The best way to desegregate an organization is by an edict sent down through a chain of command, which is how the army did it. Because performance criteria are so clear, people can be judged more clearly on their abilities. In addition, the army's massive education program provides abundant opportunities to learn what is necessary for promotion. We in education need to take the services more seriously as collaborators and as competitors. The army has increased its share of the college eligible pool of high school graduates, and plans to do even better.

Summary

1. Shortly after the year 2000, we will be a nation in which one of every three will be non-white. There will be great economic and political strength in the black, Hispanic, and Asian groups of Americans. (Whether or not a "rainbow" coalition can be formed seems to be unclear at present.) The average white in America today is 31, the average black is 25, and the average Hispanic is about 21. In the future, the white population will increase its average age compared to minorities, leading to a situation in which an aging white work force will be very dependent upon an increasingly minority work force to pay their social security bills.

2. The students who will be entering the public schools will be the most difficult to educate group we have ever dealt with, in terms of (1) poverty, (2) non-English-speaking, and (3) physical and emotional handicaps. (Note that we are not including minority here, as minority middle class students are now shown to perform as well as white middle class students.)

3. The cultural, ethical, and behavioral diversity in today's very young children represents a new order of pluralism as far as the schools are concerned. Yet, our present concern seems to be tightening standards in an outcome sense, without providing the educational resources to ensure that every child has a reasonable chance of attaining these new standards. This is a time when we need

the schools to create winners, yet all the national commissions are telling the schools that their job is to pick winners. This is precisely the wrong time, demographically, to push for schools as selecting devices.

4. We need all the middle class members we can get, white, black, Hispanic, and Asian. The school role in making this happen will be very important. Unless something intervenes, higher education will increasingly be dominated at the faculty level by whites and Asian-Americans.

The "Teacher Shortage"

In this author's opinion, much of the debate about the shortage of teachers has been misguided, largely by applying national images to state and local situations. I have found precious few superintendents of wealthy suburban school districts full of middle class students who want to learn, who are panicked by a teacher shortage. They generally have 20 or more qualified applicants per position.

If you count vacancies listed, we will have a shortage of about one million teachers by 1990. If you compare the number of teaching positions closed to new ones being opened, you have a small and widely distributed shortage. (One common pattern is a decline in need for high school teachers and an increased need for early elementary teachers.) The fact that many districts still have more teachers than they can use needs to be factored into our thinking. Although a number of teachers who were hired to teach the Baby Boom will retire in the next decade, many of them will not need replacement, as the Baby Boom was concentrated in the Northeast and Midwest, areas of little growth in youth populations at present. Finally, the number of students in teacher education programs in the institutions which generate the most teachers seems to be increasing, even though no one has developed strategies to achieve this result. (Some trends just bottom out, through a process not yet clear.)

The real teacher shortages are in the growth states of California, Texas, Arizona, and Florida, states in which minority students are 40% or more of the student body. The Southeast and Southwest seem to be centers of some shortages. A second center for teacher shortages is in big city school systems throughout the United States. It is not particularly fun to teach in some of these schools, and even those who are hired do not stay long, which means that the position becomes vacant again next year.

There is a third area of teacher shortage, seldom discussed by commissions and blue ribbon panels. In my view, given what I have said in this paper, this third area of teacher shortage is the most urgent. If we want to take full advantage of the new plurality in America, we will have to lick these teacher shortages:

1. A major shortage of teachers for the handicapped.

2. A major shortage of teachers who speak several Asian languages.

3. A major shortage of teachers who share their students' ethnicity.

4. A major shortage of teachers who are good at working with urban and rural poverty.

5. A major shortage of teachers who can work with kids who do not have the traditional two-parent family at home.

6. A major shortage of teachers who live and work in inner cities.

The chorus of arguments about the schools has not enhanced our understanding of these teacher shortages in the slightest. This is due, in my opinion, to a fundamental misunderstanding of the demographic realities of schools. These realities can be clearly described:

> We are in an era in which youth are in short supply. This era will continue for many years, as our nation's population ages.
>
> A smaller segment of the youth we have will be white, middle-class suburban youth (the youth the schools of education have trained teachers for).
>
> Given our current scarcity of youth, we must make sure that as many of them as is humanly possible will succeed, in education, work, the military, and other endeavors. Rejecting students does not contribute to this end unless we are certain that they cannot learn, and we can never be certain.

Our students of tomorrow will be more diverse than those of today. Therefore, our strategies for teaching them will have to diversify also. There are many ways of achieving any standard. We need not reduce standards, but increase the effort to assist every student's efforts to reach them.

The future of the aging, largely white middle class will be determined in part by the successes of young minorities in getting a good education and a good job. In Texas, 46% of the public school students are minority. If they all flunk out of school in the 10th grade and stay on welfare, no Texans will be able to retire. For the first time, demography is dictating the interdependence of age groups and ethnic groups.

Using the schools to select winners may have been all right when we had an abundance of youth, but what we now need to do is get the highest performance out of every student. This is both a practical and an ethical imperative. When the young are more diverse, the issue becomes even more important.

The greater the student diversity, the smaller the class should be. In fact, the most diverse classes tend to be the largest (California) while the least diverse tend to be the smallest (Minnesota).

Conclusions

The point of this paper has been to show that there is a major conflict between the roles we wish the education system to play and the demographic facts of life. What is the role of teacher education (and of the school of education more broadly) in all of this?

Schools of education are simply one link in a very complex chain of educational systems and services. They are also very handy when we are looking for a fall guy to explain the education system's failings. Therefore, I will not post a global wish list of "Things To Do" for schools of education that will make all these problems and

issues null and void. But there are a few strategies that might make sense for their own sake, regardless of whether or not they provide better education for our students right away.

First, it is time that schools of education took on the task of relating the rest of the university to the public schools. For too long they have been the only contact between the two levels of education, to the detriment of all. It is too easy for liberal arts department chairs to grouse about the quality of their entering students without taking any responsbility for finding out about the conditions in public schools. (Some years ago, the teachers of freshman English at Yale spent a year teaching in the New Haven public schools, and the teachers of New Haven senior English taught the Yale freshmen. Much learning occurred!)

Second, school of education faculty and administrators often look very Caucasion indeed, even when their students are being trained to teach in schools with very diverse students. Indeed, the teacher trainees often look very Caucasion also. Outside of Tomas Arciniega, how many Hispanic deans of schools of education are there? Outside of Jack Gant, how many black deans of major schools of education are there? And Asian-Americans? It will take time, but certainly schools of education need to work on more diversity in staff, as well as in their students. This is easy to say and very hard to do.

Third, school of education contributions to the area of inservice education need to be improved. I believe that more can be done, not just to inform teachers about new research findings, but to encourage teachers to begin doing more inquiry on their own. Good inservice programs should increase the retention rate of classroom teachers. By and large, herding 800 classroom teachers into an auditorium to listen to a professor lecture about the superiorities of the discussion method over the lecture method will not accomplish this aim.

Fourth, schools of education need to work harder on getting a more diverse student body in teacher education. This can include more mid-career professionals from the military (early retirees looking for second careers), business people who are looking for a service career or who just want a one year "sabbatical" to teach computer science in the schools. Only a handful of schools of education actively recruit middle-aged education majors.

Fifth, reducing class size in many low-retention states would be a fine way to improve student learning and retention. Unfortunately, it is also horrendously expensive and would increase what "teacher shortages" do exist. We need some imaginative thinking about how to get the benefits of small classess without paying all that money. Team teaching and differentiated staffing do work, but have not become part of the mainstream since the first work in Lexington and Newton, Massachusetts in the late fifties. We need some good thinking in this area, and schools of education are the best places to work on issues of teacher deployment and organization. The recent Carnegie report from Marc Tucker certainly opens the door.

These suggestions will, in themselves, solve none of the major problems we have developed. But, along with other activities initiated by schools of education, we might be able to achieve better coordination of the wide variety of efforts to "improve" the schools, particularly in terms of the ability of the schools to maximize the learning of all our students. We can't just select winners, we must develop them.

SCHOOLS FOR THE 21ST CENTURY: THE CONDITIONS FOR INVENTION

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It is becoming clear that the fate of the education reform movement in America depends upon the willingness of public school educators to understand and embrace the proposition that nothing short of fundamental restructuring of schools will suffice if the continuing vitality of public education is to be ensured. Repair of existing structures is not enough. This is the message underlying what is coming to be called "the second wave of school reform," and it is a message with which I am comfortable.

The Carnegie Task Force report contains some of the strongest rhetoric regarding the need for fundamental restructuring, but this task force is not alone in the view that restructuring is essential. Writers like Boyer, Goodlad, and Sizer have arrived at similar conclusions, and other commissions have made recommendations quite similar to those of the Carnegie Task Force. For example, the Holmes Group report on needed reform in teacher education implicitly assumes a fundamental restructuring of schools as do various segments of the National Governors Association Task Force report.

Just as I am comfortable with the general notion that nothing short of fundamental restructuring of schools will suffice, I am also in general agreement with the proposition that the appropriate target for the second wave of school reform is what goes on inside the schoolhouse and the classroom. Lengthening the school day is not likely to have desired effects if what goes on during the school day is not changed. More is not necessarily better.

The Role of District-Level Personnel in School Reform

I am, however, more than a bit concerned with the fact that most proponents of restructuring schools overlook--or look past--the roles of district-level personnel and the functions of district-level variables in shaping the conditions under which reform in the schoolhouse and the classroom can and will occur. Principals cannot share authority that is not theirs to share any more than teachers can carry out functions the union contract precludes them from carrying out. So long as board policy and the procedures by which principals are evaluated tolerate, if they do not encourage, principals behaving in authoritarian ways, then teacher empowerment is totally dependent on the personal orientations and needs of each building principal in a school district. These, and related matters, have had little attention in the present discussion on school reform.

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My purpose here is to call attention to the real and potential linkage between school district level concerns and the efforts to restructure schools at the level of the schoolhouse and the classroom. The reader who is seeking a detailed description of a preferred form of building level school organization will be disappointed. It is my view that we know far too little to prescribe precisely how individual schools should be organized, how new technology should be used, or even how the school day should be spent. These are matters that need to be addressed, but those who address them are teachers and building administrators. The critical question is, how can district level leaders ensure that these issues will be addressed in each school building, and how can they ensure that the manner in which these issues are addressed will, in fact, result in schools that produce "better performance by students and more sensible conditions of work for teachers" (Sizer, 1986, p. 38). My hope is that the remainder of this paper will contribute to the discussion of this important topic.

Vision at the Top

If educators learn nothing else from the recent literature on America's best run businesses, they should learn the importance of strong and visionary leadership at the very top of the organization. Principals are at the top of the schools they lead, but they are not at the top of the school system of which they are a part (except in very small districts).

Without strong and visionary leadership, businesses have a difficult time maintaining direction, and so do school districts. Furthermore, even failing businesses, especially failing large businesses, do have some pockets of excellence (educators would call these "outlier" schools) that seem to produce quality while the overall business is deteriorating. Thus, the conditions of business are not that dissimilar from the conditions of education where failing school systems have some successful schools. Unfortunately, the significance of district-level leadership to the continuing health of the reform movement in education has all but escaped the attention of reformers and those who write commission reports.

Few who are presenting analyses and prescriptions for school reform have given careful attention to the fact that, in almost all instances, the primary vehicle through which state policy is made operational in local school buildings and classrooms is local boards

of education and the offices of superintendents. There is, for example, a growing concern among local superintendents and members of boards of education that the reform movement has eroded the tradition of local control. There are, of course, a variety of ways that local boards of education and superintendents can react to this perceived threat, not the least of which is to sabotage with paper compliance. Indeed, in my work as a consultant, I have heard two reform-minded governors say specifically that one of the greatest problems that they have experienced is that they have vastly underestimated the capacity of local administrators and local boards of education to engage in ritual compliance and explicit sabotage.

It is, of course, difficult to describe how district-level attributes shape the response to reform efforts, but it is obvious that such shaping does occur. I would argue, in fact, that if the second wave of school reform is to be anything more than a manifestation of the charismatic leadership of a powerful building principal or the result or the peculiar combination of sophisticated and rebellious teachers located in a school building, it will be necessary for the relationship among boards of education, school superintendents, and other parts of the school system to undergo at least as fundamental a restructuring and reorientation as is now called for in the more radical proposals for the restructuring of building level units.

More importantly, what seems to be missing in much of the present literature on reform is recognition that without visionary and enabling leadership at the school district level, the dual values of equity and excellence are not likely to be pursued. More specifically, if one assumes that the critical determinants of excellence in schools are the personal characteristics of principals and teachers and that once outstanding pe ons have been recruited all that is needed is to grant them decis -making autonomy, the pursuit of excellence in schools will be spotty indeed.

I have little doubt that great principals and great teachers can produce excellence, even when others cannot. The literature on effective schools, in fact, had its genesis in the identification of such heroic principals and faculties. Unfortunately--and here I parallel the arguments of Sykes (this volume et al.)--heroism is not in unlimited supply. If we depend upon heroic performance for excellence, we will, perhaps, get excellence for those few students who are lucky enou h to go to those schools that by chance recruited the right people at the right time. Thus, the va.ue of equity will be missed.

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The idea that the most expedient way to school reform is by getting super men and super women and freeing them from the shackles of mindless bureaucracies has considerable ideological appeal. Autonomy, naively conceived, can, however, become anarchy. Though anarchy may produce excellence for the few, it will produce mediocrity and worse for the many. Indeed, one of the arguments for bureaucratization (i.e., standardization, centralization of authority, job specialization, etc.) is that while it suppresses excellence, it suppresses the standard by which the mediocre is measured.

Neither the first wave nor the second wave of school reform is likely to produce the results hoped for and anticipated until and unless we come to understand that the task of wedding strategy, structures, and systems (the hard S's) with staff, style, skill, and superordinate goals (soft S's) is a task that cannot be carried out either at the building level or at the state level. This is a task that necessarily must be carried out by boards of education and the administrative staffs that they employ. Whether or not the schools of the future will be intentionally invented (or simply "happen") depends in large measure upon whether these district-level structures can be reformed and reconceptualized in ways that make it possible to provide direction and leadership to the difficult task of reinventing public education in America. And, the first step in such a reconceptualization is to think through the assumptions we hold about schools and school reform. Furthermore, we must consider the image we have of teachers, students, and schools and how these images shape thinking about how school districts can and should be led.

A Preliminary View

As should now be clear, the discussion that follows is based on two assumptions:

> 1) The continuing vitality of public education in America depends, in large measure, upon the willingness of educators to fundamentally redesign and restructure schools, especially with regard to the way decisions are made, the way results are viewed and pursued, and the way schools are organized and managed.

2) Whatever form this restructuring takes, it will require a fundamental shifting of power arrangements within school buildings and among the various constituencies that provide the context within which building-level faculties function. More specifically, if public education is to survive as a vital force, the claims of teachers for increased decision-making authority and the recommendations of educational reformers and theorists for greater autonomy at the building level must be respected.

Two Approaches to School System Management

There are basically two ways that schools can be managed. The first is management by programs, and the second is management by results. Management by programs is consistent with bureaucratic orientations. In bureaucratic management, the critical question is, "Do those who are assigned to do specific tasks do what they are suppposed to do when they are supposed to do it?"

Management by results shifts the focus to outcomes. Instead of asking the question, "Do those who are assigned the task do things right?," the question becomes, "Do those who are assigned the objective, goal, and outcome do the right thing?"

Doing things right focuses attention on routinization, standardization, and tight supervision. It encourages conservatism and discourages inventiveness.

An emphasis on results and doing the right things encourages, indeed requires, independent decision-making and autonomy, while it increases accountability and requires detailed attention to the assessment of performance. If schools are to become the adaptive organizations they must become to respond to the rapidly changing needs of a post industrial society, it is essential that they become more inventive. To become inventive, the tendency of schools toward bureaucratic solutions must be offset. Whether or not these tendencies can be offset depends, in large measure, on the willingness of teachers and administrators to abandon traditional ways of thinking about schooling and schooling processes. Among other things, the men and women who learned their trade when the ability to control schools

and to control students through the management of programs and classrooms was emphasized, must now learn to direct schools and direct students thorugh conscious and disciplined acts of leadership. As Drucker (1973, p. 30) writes, they "will have to learn to lead rather than manage, direct rather control."

The Importance of People

Teachers and administrators are drawn from that class of persons that Kelley (1985) refers to as gold-collar workers. Unlike the blue-collar worker who lives to work, the gold-collar worker expects work and life to be integrated. The gold-collar worker is not simply interested in a standard of living; the gold-collar worker is interested in a style of life. Among the most important of these life style values are opportunities for personal growth and development, job variety, and opportunities to engage in creative and meaningful interactions with other adults.

Given present demographic trends and economic developments, it appears likely that the number of jobs being created which will appeal to the values of the gold-collar worker is likely to be well in excess of the number of gold-collar workers available to fill those jobs, especially by the 1990s. Given the fact that public education is a public sector job, it is unlikely that public education can ever directly compete with the private sector in terms of absolute salary and absolute standard of living. Thus, if public education does not compete with the private sector on the life style dimension, it is doubtful that schools will be able to attract enough talented people to maintain the quality of schools, let alone increase that quality. One of the keys to the quality of life in the work place is the ability to feel that one is in control of one's own destiny and that one is making a special contribution--in a word, "empowerment."

One of the unfortunate consequences of the early debate regarding empowering teachers is the assumption that the phrase means taking power away from principals and other administrators. Nonsense. Leaders who lead leaders are inherently more powerful and necessarily will be more capable than are managers who control the powerless and disenfranchised. Leadership generates power by transforming the environment and those who are lead. Weak organizations provide little decision-making authority, even for the top leaders. Strong organizations increase the potential autonomy of all who are associated with them.

The ability of education to attract, retain, develop, and motivate high-performing teachers and administrators will be seriously compromised (even more so than it is now) if the status, authority, honor, recognition, and responsibility of the position of teacher and principal are not greatly enhanced.

The Professionalization of Teaching

Medicine and law stand as the archetypes of professions. Thus, when one speaks of teaching as a profession, there is a tendency to compare the conditions of teaching to the conditions of medical and legal practice. Such comparisons usually lead to the conclusion that teaching is a semi-profession and sometimes to the conclusion that teaching can never be a profession since many of the conditions that make medicine a profession (e.g., free choice in the client/practitioner relationship) do not exist in education.

As one who has made considerable use of medical analogies to help gain insight into the schooling enterprise, I am aware that many educators resist and resent the use of such analogies, precisely because they know that the conditions under which teaching is practiced and the conditions under which law and medicine are practiced are different in fundamental ways. In spite of this resistance, much of the momentum behind some of the more recent reform efforts, (e.g., national board certification) gains its inspiration from fields like medicine and law. Furthermore, some of the recommendations regarding how schools might be organized (e.g., the Carnegie Commission's suggestions regarding schools managed by lead teachers, operating with teams of colleagues) are clearly inspired by insights drawn from an analysis of managerial systems that typify many hospitals.

In advocating the professionalization of teaching, I have frequently used medical analogies to make my point. For example, I have argued that teacher education could be much improved if we were more attentive to the characteristic patterns by which physicians are prepared. I have argued for a distinction between certification and licensure and for disciplining teaching and administrative practice with research.

I have not changed my position on any of these matters, and I continue to find medical analogies useful. Over the past several years, however, I have become convinced that the image of schools as

hospitals and the image of teachers as professionals in an occupation structured like medicine and law have taken the thinking of educational reformers about as far as they can.

It is, therefore, time to generate a new image, a new vision--one that is more consistent with the realities of school life, and, at the same time, one that bestows the honor and status on teachers that is needed if the schools are to survive. It is essential that this new image have intuitive appeal to those who are making the greatest demands on public schools and who are also the potential source for the greatest support for public school reform (i.e., those business leaders who are being called on to reinvent America's corporate structures, who themselves manage professional knowledge workers, and who themselves assure productivity through people).

Finally, it is critical that the new image of schools be such that it conceptually provides a legitimate place for the influence of boards of education (who are not themselves professionals) and a place for the central office apparatus which generally shapes the context in which local school reform will occur.

A Place to Begin

In seeking a place to begin to build the image I have suggested, I am persuaded by two facts: 1) whatever else schools are, they are places where adults endeavor to get the young to engage in purposeful activity, i.e., to do work; and 2) the kind of work that schools try to get children to do is strikingly similar to the kind of work that they will be called upon to do later in life, for the jobs they will take will require considerable facility in working with knowledge and knowledge-related products. In sum, schools are knowledge-work organizations.

So far as I can determine, Peter Drucker coined the term "knowledge worker." Drucker was concerned that the nature of the American economy was (is) shifting. In the early to mid twentieth century, the primary task of management was (or so it seemed) to control, regularize, and standardize production processes, most of which called on persons to put to work manual skill or muscle. Scientific management, time and motion studies, attention to financial controls, performance inspection, and tight supervision (e.g., the axiom that span of control for any manager should be between five and eight persons) were all a part of this management thinking.

Unfortunately, what industrial engineers, industrial psychologists, and industrial sociologists came to know, or think they knew, regarding management procedures had more to do with controlling the activity of unskilled or semi-skilled workers who were working on a relatively clearly defined product or using relatively clearly defined processes.

What was happening, however, was that American business was shifting from an industrial-based to an information-based economy. What was called for was a type of management that could manage in turbulent times, for technological advances were proceeding at a more rapid rate than current theories and conventional strategies could embrace. What was called for was a manager who could manage people who perhaps knew more about their jobs than the leader (manager) knew.

In brief, what Drucker (1973) suggested was that managers must confront the problem of managing people who work primarily with concepts, ideas, and theories rather than with tools, equipment, or brawn. Furthermore, these managers must be concerned with products yet unknown produced by processes yet to be created. Drucker summarized the situation as follows:

1. "Management will, therefore, have to run at one and the same time an existing managerial organization and a new innovative organization" (p. 31).

2. Management "will have to learn to lead rather than manage and direct rather than control" (p. 30).

3. "Knowledge work cannot be productive unless the knowledge worker finds out who he is himself, what kind of work he is fitted for, and how he works best" (p. 33).

4. "There can be no divorce of planning from doing knowledge work. On the contrary, the knowledge worker must be able to plan himself" (p. 33).

5. It is not possible to "objectively determine one best way for any kind of work to be done. There may be one best way, but it is heavily conditioned by the individual and not entirely determined by the physical or even by the mental

characteristics of the job. It is temperamental as well" (p. 33).

6. "Making knowledge work productive will bring about changes in job structure, careers, and organizations as drastic as those which resulted in the factory from the application of scientific management to manual work" (p. 33).

Students as Knowledge Workers

Children come to school with knowledge, and while they are in school, it is assumed that they will gain more knowledge. And, how do they gain knowledge? By working on knowledge and knowledge-related products. Whether the reader is a behaviorist or a Gestalt psychologist, he or she will surely agree that learning is an active process. Furthermore, schools are designed to make learning happen on purpose rather than by random chance. Indeed, if schools cannot produce learning that would not occur without them, then why have them (except, of course, as a custodial service for working parents). Thus, schools are places where children are induced to engage in purposeful activity (a dictionary definition of work is "purposeful activity") which in turn is expected to result in (or produce) learning (i.e, to gain knowledge and skill). In other words, schools are places where children are expected to work on, with, and for knowledge. Thus, both logic and common sense suggest that schools are knowledge-work organizations, and children are knowledge workers.

The idea of the student as worker is not novel. Educational researchers (e.g., Bossert, Doyle) have frequently made use of the image of students as workers in conceptualizing their own research tasks and analysis. Furthermore, those who fear that the conception of student as worker is inherently anti-intellectual should consider the work of Theordore Sizer. One of the chief criticisms of Sizer's recommendations for school reform is that his image of the desirable high school too closely parallels the image of the elite New England academy. Yet, Sizer is comfortable with recommending that students should be viewed as workers.

Unfortunately, and in spite of the work language surrounding school (who has not heard of home work, class work, busy work, seat work?), there remains a residue of anti-intellectualism in the American education establishment. Part of the resistance to the idea of students as workers must surely lie in the assumption that doing

things with ideas, symbols, and concepts is inherently purposeless or certainly nonproductive. If this were not the case, few could argue with the simple proposition that students are, indeed, knowledge workers.

The Teacher as Executive

Conceptualizing the student as worker has a number of important consequences for the way schools are viewed and the way the problems that schools must confront are framed. First, it brings the student clearly inside the school as an active and responsible member of the organization as opposed to a passive "raw material" that teachers are supposed to work on and shape into an acceptable product. Second, it shifts attention away from selecting, sorting, and grading and focuses attention on motivating, instructing, and leading. Finally, and perhaps most importantly, it requires the teacher to shift from the role of information processor and inspector to the role of manager and leader.

The parallels between the role of the teacher as manager/leader (i.e., as executive) and the role of executives in the business sector have not completely escaped the attention of educators. Indeed, David Berliner (1983) has done a considerable amount of work in developing this concept. To date, however, the conception of the teacher as executive has not enjoyed a prominent place in the thinking of reformers. The cause of fundamental reform in schools could be much advanced if the image of the teacher as executive had a more prominent place in shaping the thinking of boards of education and top line school administrators; at least, I am prepared to argue that this is so.

First, the conception of the role of teacher as executive enhances the role of teachers and implicitly argues that teachers, like other executives, must have considerable decision-making autonomy if they are to be effective. Second, the image of the teacher as an executive recognizes that teacher productivity is achieved through other people. Thus, arguments about the evaluation of teachers shift from inspecting products to the evaluation of results. Similarly, the image requires both teachers and administrators to understand that there is no one best way to teach just as there is no one best way to lead. The context, the nature of the task, and the intellectual and emotional maturity of the workforce all must be taken into account in making executive decisions regarding how to lead, just as these things must be taken into account in making decisions regarding how to teach.

Finally, conceiving teachers as executives rather than as members of a free-standing profession like medicine, acknowledges and legitimizes the "corporate nature" of public education. For example, like corporations (at least like successful corporations), schools must be attentive to the conditions of the market. Teachers and school administrators must help shape the schools, but in the end, schools will survive only if they effectively pursue goals (i.e., produce results) that are valued by the communities which support them. Though some find it ideologically repugnant to acknowledge that it is so, the fact remains that schools are not established solely to meet the needs of students. Schools are established to meet societal needs as well. As Durkheim (1956, p. 123) has put the matter, "education, far from having its unique or principal object the individual and his interests, is above all the means by which society perpetually recreates the conditions of its very existence."

Executives know that they must satisfy the needs of the work force if they are to produce products that will satisfy customers. Thus, executives, like teachers, must constantly be negotiating the goals, aspirations, needs, and talents of those who work for them and the goals of the organizations of which they are a part.

I seriously doubt that many children can be motivated to learn to read on the basis that if they fail to learn to read, American business will be unable to compete. On the other hand, failure to take into account the needs of our economy for an intelligent and highly motivated work force is a failure that cannot be endured. Furthermore, it must be understood that in the broadest sense, almost all school work is, or should be thought of as, vocational education since most of the vocations that children of the twenty-first century will enter will require them to do knowledge work.

The Principal as Leader of Instructors

As executives, teachers are, or should be, the primary instructional leaders in the school. Does this mean that the role of the principal should be abandoned? I think not, but it does mean that the role of the principal should be fundamentally reconceptualized. Rather than being required to manage and control, the principal will need to learn to lead. More than that, the principal will need to learn to lead persons who are themselves conceived to be leaders and to develop leadership among those he or she leads. Leadership development is the primary task of a leader of leaders. (See, for example, Grove, 1983.)

As indicated earlier, empowering teachers does not disenfranchise principals. Rather, it empowers principals. For example, as a leader of leaders, the principal is less concerned with whether a teacher implements the principal's decision in the "right way" than with whether the teacher makes the right decision and then implements it. This suggests, of course, that the principal must understand that "the right decision" is not always the decision that he/she would have made, but it is the decision that produces the results that both the teacher and the principal agree should be produced.

The Superintendent As Chief Executive Officer (CEO)

It is interesting that the emerging literature on effective corporations gives considerable attention to the role of the chief executive officer in shaping the values of the organization, articulating those values, and inspiring and supporting others to pursue those values. However, the literature on effective schools, indeed most of the literature on school reform, is largely silent regarding the role of the superintendent.

Since we are largely ignorant regarding the specifics of the superintendency and the dynamics of effective school systems, we can only assume that the characteristics of effective superintendents and effective school systems are not too dissimilar from the charcteristics of effective leaders in knowledge-work organizations generally.

If this assumption is granted, a cursory glance at how typical school systems are organized and a cursory view of the roles of school superintendents make one wonder whether we can possibly have any effective school systems at all. First, effective CEOs seem to be persons of vision and passion. They are constantly pushing for innovation and change and are persistent in identifying and announcing problems and inspiring others to invent solutions to them. One could characterize effective organizations as places where troublemaking is centralized and problem-solving is decentralized.

The idea of the superintendent as a problem identifier and troublemaker is anathema to most school systems. Superintendents are expected to be problem-solvers, not troublemakers. For example, a superintendent who announces that "we have a dropout problem" is as likely to be fired for not having solved the problem as he is to be applauded for trying to get others to solve it for him. Indeed, many

superintendents spend much of their time convincing board members and the press that "we're no worse than anyone else" rather than setting in motion programs and activities that will ensure that "we're better than everyone else." And, as I have indicated elsewhere (Schlechty, 1985), the structure of school finance and the lack of long-term developmental funds makes it difficult, if not impossible, for superintendents to engage in long-term, visionary thinking about school improvement.

Put directly, the knowledge-work conception of schools requires that the superintendent be a strong and forceful leader, an educator, of the community about education and its problems, and an inspirer of decisions rather than a decision maker. More than that, the knowledge-work conception of schools requires that the office of the superintendent be viewed as the moral and ethical center of the organization.

For this to happen, it is essential that the superintendency be reconceptualized. It will require a relationship between superintendents and boards of education which is more like the relationship between chief executive officers and boards of directors than is now the case. It will also require considerably more fiscal autonomy than typical patterns of state and federal categorical funding now permit. If teachers are to be empowered, principals must be empowered, and if principals are to be empowered, superintendents must be empowered as well.

Indeed, one of the most critical problems to be addressed over the next decade is the problem of reforming the superintendency so that the occupants of this office can provide the vital leadership that a sustained school improvement effort will require. A second critical problem is identifying, developing, and motivating men and women of stature and vision to lead school systems into the twenty-first century. If we want o invent schools where ordinary people can give extraordinary performances, then we must have extraordinatry men and women to lead them.

Developing a Clear Image[1]

For school reform to be anything more than the result of idiosyncratic responses to national reports by individual principals and faculties, it is essential that superintendents and boards of education see themselves, and are seen by others, as clear leaders in

[1]Some of the ideas and materials presented here appear in an earlier version (see Schlechty, 1985).

the effort to improve schools. The first act in asserting such leadership could be to develop clear answers to the questions:

1. How do we view students: what is their role in the education enterprise?

2. Given this view of students, how do we view teachers, principals, and other employees of the school system?

3. Given this view of teachers, students, and schools, what kinds of management systems are appropriate to ensure that this view or image will be consistently reinforced throughout the school district?

I have already suggested the image of teachers, students, and schools that I believe should guide our thinking about reform, but I would be remiss if I did not mention at least two other possibilities. The first is the student as a product of the school system; the second is the student as a client or customer.

The idea of the student as a product has the advantage of being commonplace in our present thinking. It is perfectly consistent with the idea of the school as a factory, the teacher as a member of a relatively unskilled work force, and the principal as a shop foreman. Tight supervision, carefully prescribed curricula (teacher proof materials), and rigorous testing and inspection flow naturally from such a view.

Viewing students as products removes students from the accountability structure of the system (products are passive; they are worked on, not with; they are shaped, not led). Viewing students as products also suggests a set of working conditions for teachers which are unlikely to be attractive to gold-collar workers and suggests a form of management that is not likely to inspire principals who see their major task as "getting others to lead."

Viewing students as clients or customers does offset some of the more bleak qualities suggested by the image of the student as a product. Furthermore, viewing students as clients does enhance the status of teachers; at least it has the potential of doing so. Specifically, if students are clients to be served or customers to be serviced, it becomes possible to view teachers as "professionals." Unfortunately, the customer or client image only partially addresses

the issue of professionalism, unless of course, one embraces some of the more or less radical forms of "student choice" with regard to schools attended, teachers assigned, and so on. More importantly, however, the client view totally overlooks the fact that education has a cultural and social base as well as a psychological base. Schools are established to serve the ends of society as well as the ends of children and their parents. Schools provide not only what is wanted, but also what sophisticated adults believe is needed. One of the functions of education is socialization, and socialization is inherently nonvoluntary.

Obviously, I have overlooked many positive attributes that could be assigned to the image of students as products or students as clients, and I have not gone far in describing the management implications of each of these images. The reason this is so is that I have chosen my image, and the space left available to me seems more wisely used in providing a detailed description of the implications of the image I have selected, than in building up and tearing down straw men.

The images suggested (i.e., the image of the students as products or as clients) have considerable appeal. Indeed, many of the decisions policymakers make are implicitly based on assumptions that derive from one or the other of these views. For example, many current systems for evaluating teachers which are "based on the research on teaching" are strikingly similar to evaluation systems used in factories where "scientific management" relies heavily on the time and motion studies of industrial engineers for guidance and direction.

What is critical is that those who run schools and those who work in them must fully understand the images that shape their thinking and appreciate the consequences of embracing one image or the other. No choice is more important than the choice of the way the school leaders view the position of the students in the system of things, for that choice, more than any other, will determine the direction school reform willl take in a given school district.

Implications of the Knowledge-Work Metaphor for District Local Leadership

Having suggested the knowledge-work metaphor to numerous audiences, I am aware that some readers will find the ideas presented here disquieting. For example, I have suggested that the fundamental purpose of schools is to get children to do school work. Such a suggestion will immediately conjure up the image of the autocratic teacher putting powerless students through numerous rote drills, filling out workbooks, memorizing lists, and other banal forms of activity. It is true that school work can be busy work. It is also true that school work can be nonproductive work. It is equally true, however, that schools cannot systematically produce learning if children cannot be brought to do school work. Indeed, the first and most necessary condition of effective schools resides in the capacity of schools to get children to do school work. Perhaps a distinction between purpose and goals will further clarify this point.

Purpose and Goals

Purpose refers to the functions that must be fulfilled on a daily basis to achieve goals; goals indicate the intended results of acting with a clear purpose in view. For example, the purpose of every business is to get and keep customers. The goals of businesses vary but usually include making a profit, producing products that customers will buy, and providing employees with working conditions that create commitment and inspire high quality performance. Purpose suggests what must be done today; goals indicate the intended consequences of what is done.

More than that, goals indicate how purpose should be pursued. Without clear goals the pursuit of any purpose is likely to be meaningless. Conversely, without a clear understanding of purpose, goals are not likely to be achieved.

The purpose of schools is to induce students to do those forms of school work that teachers and administrators assume will result in (produce) the students' acquiring the knowledge and skills that the goals of the school and the school system suggest should be acquired. Thus, the nature and form that school work takes will depend upon the goals that the community assigns to the schools. Furthermore, the way school work is designed, the ways schools motivate students to do school tasks, and the quality of the instruction the students are

given regarding the content of the tasks that they are assigned are primary determinants of the success the students have in doing school work. Effective schools not only ensure that students do things right, but they also ensure that students are called on to do the right things. Thus, schools are not simply organizations designed to manage students; they are organizations that are called upon to lead students as well. As Bennis and Nanus (1985) observe, "Managers do things right. Leaders do the right thing."

On Doing the Right Things

Embracing the notion that the student is a knowledge worker, and thus an active and accountable participant in the life of the school, does not shift the responsiblity of student productivity from school officials to the students or to the students' parents. Indeed, the reverse is the case, for inherent in the knowledge metaphor is the idea that, in the long run, the quality of a leader's performance can be no higher than the quality of the performance of those who are led. The productivity of the leader can be no higher than the productivity of the subordinate, and the success of the executive, in the long run, is to be judged by the success of those over whom the executive exercises authority. Thus, it is apparent that getting students to "do things right" is important, but deciding "what is the right thing to get them to do" is equally important. Indeed, a school district could be very efficient (i.e., get students to do things right at the lowest possible cost) and at the same time be very ineffective (i.e., fail to produce results that are valued by the constituencies whose support must be maintained if the school system is to survive). Thus, once the knowledge worker image is embraced, board members and superintendents must be especially attentive to ensuring that the systems they lead are doing the right things. In seeking guidance in this regard, there are three key questions that system-level policymakers must constantly ask and ask again:

a. What is our school system about (i.e., what are its binding goals and commitments?)

b. If we continue to do what we are now doing, what will our school system likely be about in 5-10 years?

c. What should our school system be about?

Answers to these questions are not easy to come by, but they are impossible to come by unless one is attuned to the notion of measurable results. For example, if one wanted to know what a school system is about, a way to begin to answer this question would be to examine the school system's budget. When additional resources become available, where are the funds allocated? (It is likely that boards of education that evenly distribute budget cuts or budget increases across all programs and projects often do so because they do not know, cannot agree, or will not acknowledge what their system is about.) Another way to determine what a school system is about is to measure the way time is allocated. To whom do principals most frequently talk, and what do they talk about? What groups, constituencies, and items commmand the superintendent's attention? To what subjects or activities do teachers give their time in classrooms, in faculty meetings, and in the lounge? What items dominate the attention of the school board?

The way money is allocated and the way time is allocated are both results which are measurable. Furthermore, these are results that give a clear indication of the operational goals and priorities of the system. Thus, one could, through a process of induction, gain a relatively clear image of what the goals and priorities of a school system are by examining how resources (money, time, personnel, etc.) are allocated.

It can be argued, of course, that such results are far removed from the results of the school (i.e., student achievement). Perhaps, but one of the most effective ways of increasing student achievement is to induce students to concentrate energy and attention on worthwhile school work. Similarly, it would make sense that the principal who is effective at leading instructors would spend more time in instructional activity than the principal who is not so effective. This is common sense, but, unfortunately, common sense is not common knowledge or common practice.

To gain a sense of what a school system might be about if the system continues to function over the next 5-10 years as it is now functioning, one needs to look at trends. For example, one could look at budgets over the past 5-10 years to determine changes which have occurred. Data could be developed to determine whether teachers were spending more or less time on any given activity than they did in the past.

Such an analysis could go far to help policymakers determine where they are and where they are likely to be headed. But, there is more here that is even more critical. To give meaning to the measure of present results, policymakers must have a clear image of where they want to go as well as a detailed knowledge of where they are and where they seem to be going.

Perhaps, the most useful element of the effective schools and effective teaching literature is that it provides a focus for serious discussions among policymakers regarding where they want the systems they manage to go. For example, the effective teaching and effective schools literature clearly indicates that teachers and schools which spend more time on academic tasks increase the amount of academic learning that occurs. The easy logic would be to suggest that what must be done, therefore, is to lengthen the school day or lengthen the school year. Perhaps this is so, but there are other alternatives. For example, one could imagine a scenario where the academic learning time could be increased by developing policies intended to reduce the number of interruptions in schools and classrooms. Other alternatives might include making the decision that academic programs would take precedence and priority over all other programs in the school system and that when choice points occur, (e.g., attending a history class or football practice during the last period of the day), the academic program is given precedence.

These options are suggested as points of illustration rather than as points of advocacy. What is being illustrated, I hope, is that careful consideration of what school is about and what the priorities should be is a paramount responsibility to top level decision makers in every school system. Admittedly, articulating a clear goal is almost certain to generate value clashes and disagreement. Many school boards carefully attempt to avoid such open values clashes (Vidich and Bensman, 1957).

It does take considerable courage for superintendents to foster such potentially tension-producing discussions. However, unless school boards and superintendents are willing to take such risks, there is little likelihood that the school reform movement will have any systematic effects. What effects the movement has will be left up to chance encounters by dynamic principals or virtuoso performances by rebellious faculties. If the literature on effective schools and on America's best-run businesses verifies anything, it verifies most clearly the old adage that "people who know where they're going are more likely to get there."

Management by Results

One of the happy outcomes of the effective schools literature is that the findings seem to coincide with what management theorists like Drucker (1973) suggest to be the case in other organizations. Simply put, organizations which use measurable output as a means of directing individual and collective action are more effective than organizations which use other criteria for direction (e.g., the whims of administrators or the personal preferences of employees). One of the unhappy outcomes of the effective schools literature may be to encourage education policymakers to confuse results which are easily measurable (e.g., standardized test scores) with measurable results. At the risk of seeming pedantic, I would suggest that if there is a single most important lesson that educators could learn from the studies of America's best-run businesses (e.g., Peters and Waterman, 1982; Grove, 1983), it is that there is a difference between management results and the results of management. Furthermore, the results by which managers should manage are management results rather than the results of management.

Management results refer to events over which the manager (here I include teachers, as well as principals, in the category of manager) has some direct control and the possibilities of direct influence. For example, the effective teaching literature clearly indicates that teachers have considerable control over how time is used in their classrooms and that teachers vary considerably in the way they allocate and manage time. The allocation of time is a management result, and as such, it is a result for which the teacher as executive can reasonably be held accountable. Similarly, the effective schools literature indicates that principals vary considerably in the extent to which they visit classrooms, and the frequency with which they hold job-oriented conversations with teachers. Increasing or decreasing the frequency of such occurrences is a matter which is generally under the control of principals. It is a management result and a result for which a principal can justifiably be held accountable.

The effective teaching and effective schools literature also suggests that when principals and teachers produce management results like those indicated above, the results are likely to be improved test scores. However, neither teachers nor principals have direct control over test scores, and one of the first axioms of sound management theory is that persons should not be held accountable for events which they exercise little or no control.

The key, of course, is that school boards and top leaders must have a clear notion of what they expect students, teachers, principals, and others to do; they must communicate these expectations clearly, check to see if those things are being done, provide corrective action and support where they are not being done, and then assess whether the doing of these things produces the end results that are intended.

It is critical, however, that policymakers not confuse results with the way results are achieved. Process should not be confused with product. For example, one principal might ensure effective leadership by conducting inservice workshops for faculty which focus on adult leadership and then delegate leadership responsibilities to faculty members. Yet another principal might have an uncanny knack for identifying and recruiting personnel who have the requisite leadership skills. In both instances, the management results could essentially be the same (i.e., the presence of strong and effective instructional leadership). The management result is what is important, and these results can be measured.

What is being suggested is that designing schools for the future should not be viewed as a quest for a cookbook or recipe. Research and prescriptions can provide preliminary statements or some measurable management results which seem to be associated with student achievement on some very narrow measures. It is up to policymakers to determine what other results they wish to pursue.

Once such decisions have been made, it should then be possible for researchers to provide assistance and guidance in determining what types of management results are most likely to produce the end results (i.e., the results of management) that policymakers desire. For example, it may be that a very different approach to teaching is required to increase students' problem-solving skills than is required to help students master the basic skills needed to decode the printed word. (Just as managing unskilled workers requires different leadership styles than does the management of skilled workers.) This is not to suggest an either/or situation. What is intended is to suggest that those who decide what management results they wish to pursue and those who have the power to enforce these decisions are the only persons who can and should be held responsible for the results of management. Boldly stated, it is time to acknowledge that boards of education and superintendents of schools are, in the long run, the primary accountability points for long-term growth and profit.

Holding teachers directly accountable for test scores is no more defensible than is holding a first line supervisor at General Motors accountable for the profit of the corporation. What teachers can and should be held accountable for is engaging in those practices that most effectively produce the management results that research and theory suggest to be most closely associated with the outcomes desired of the schooling enterprise. Research provides some strong hints about what some of these management results might be, but board members and superintendents who endorse these management results should do so in the full knowledge that they alone are accountable for the results of what they endorse.

"Centralized Decentralization"

Naive interpretations of the literature on effective schools could lead one to the conclusion that the question of centralization vs. decentralization has at last been resolved. For some, the effective schools literature suggests that every school building is a kingdom unto itself and that effective kingdoms are those having strong kings. This is a mistaken interpretation of the literature.

Strong leadership at the building level is a critical determinant of an effective school. There is, however, no evidence to suggest that the principal is or should be the only, or necessarily the best, source of strong leadership. What the effective schools literature demonstrates is that effective principals are those who provide or cause others to provide strong leadership.

The obligation of system-level policymakers, therefore, is to ensure the presence of strong leadership in each school building. Fostering the emergence of such leadership through the assigning of principals, the training of principals, and the training of teacher leaders (e.g., department chairpersons or lead teachers) is a central responsibility of school superintendents and their staffs. (Grove, the chief executive officer of Intel, regularly teaches a class for beginning managers of his corporation. See Grove, 1983.) It is also a responsibility that should not be delegated to a building level unit. Thus, one of the most critical decisions district-level policymakers must make concerns the development of clear and explicit statements of what is meant by effective leadership. Equally important, they must decide what kinds of indicators are to be used to show that effective leadership is present. For example, some boards of education implicitly define effective leaders as those who have little or no trouble with staff or parents. The indicators of effectiveness are frequently nothing more than the rate and frequency of staff and parental complaints. Though one might argue with the definition of effective leadership, the point is that most definitions of effectiveness can and do have measurable indicators.

In addition to the identification, placement, and development of building-level leadership, there are other functions that cannot and should not be decentralized. Chief among these are a) the development and articulation of the guiding goals of the school system, and b) the development and specifications of the indicators that would be used to assess the effectiveness with which goals are pursued. Such processes should be diffuse throughout the system. All should participate, but it is a central responsibility to ensure that the processes go on.

What is important to understand is that if both equity and excellence are ends worthy of pursuit, then determinations of the goals to be pursued and the standards of performance to be acceptable in this pursuit of goals cannot be left up to individual building units. Ironically, it is the failure to understand this basic fact that has made the effective schools literature possible in the first place. Indeed, it was the wide variance in the performance of students in the same school system on measures of achievement of basic skills that lead to the notion of "outlier" schools and thus to the notion of "effective schools."

In the area of basic skills, the attainment of which is so critical to future life, I do not believe that individual faculties and individual principals should be permitted to choose whether they will pursue such goals or choose what standards will be used to determine the effectiveness with which these goals are achieved. Such decisions must be made collectively, with significant contributions from all concerned constituencies, but the ultimate authority for making such decisions lies with the commmunity and those who represent the community.

Given this seemingly strong argument for centralization, the argument will now be reversed. Just as there are some things that cannot or should not be decentralized, there are some things that cannot be or should not be centralized. Chief among these are a) identifying and clarifying those conditions and factors that impede the effectiveness with which the building unit and/or classroom teachers pursue the goals they are assigned, b) the development and implementation of plans and programs intended to address the problems that may have been identified, c) decisions regarding what resources and personnel are needed to implement plans, and d) decisions regarding how such resources should be assigned.

In summary, while it is the function of the central administration to determine what goals are to be pursued and to establish indicators for measuring the effectiveness of goal pursuits, it is the function of those directly responsible for implementing programs to design and manage those programs in ways that their understanding of the local situation indicates to be most effective.

There are, of course, many gray areas regarding what should be centralized and what should be decentralized. For example, some educators argue that personnel assignments, including who should be employed and under what conditions, should be strictly a building-level concern. Some argue that the building-level units should have considerable fiscal autonomy. However, such decisions can only be made on a case-by-case basis. For example, if one of the goals of a school system is to pursue the concept of a unitary school district to the point that both teachers and administrators would place their loyalty to a building-level constituency, then centralized control of personnel assignments and transfers would make considerable sense. On the other hand, if it is held that each building's student constituency is so unique that only a cohesive faculty with intimate knowledge of that constituency's peculiarities could serve them effectively, then it might make sense to give the building-level unit considerable autonomy in personnel assignment and placement.

Issues related to centralization are more than political issues. What should and should not be centralized is a pedagogical issue as well. What should be centralized and to what degree is a critical decision, and this is a decision that once made may need to be reexamined if circumstances change, new problems emerge, and different goals gain emphasis. Furthermore, such decisions should always be made against a single criterion: what will be the impact of the capacity of the school to develop and maintain the human resources it now has and to recruit and attract the kind of human potential that is likely to be needed in the future?

Problems and Growth

One of the most interesting lessons taught by both the effective schools literature and the literature on America's best-run companies is that problem identification and problem solving cannot be separated. As Drucker (1973) points out, there can be no divorce of planning from doing. Tacitly, wise teachers and administrators long have understood that the master curriculum guide served more to satisfy the needs of the central office and regional accrediting offices than it served to direct activity in the classroom.

Furthermore, it is well and good to suggest that teachers and building-level administrators should actively involve themselves in problem identification and problem solving, but such an activity can only become productive in an environment in which it is all right to have a problem in the first place. For example, many teachers and building principals rightly fear the growing tendency to publish test scores in local newspapers precisely because they perceive such activities as blame-placing strategy rather than as problem-identification strategy. What school board members and superintendents must understand is that schools with the lowest test scores do have problems, but it is in no way clear what those problems might be or how they might be resolved. Furthermore, it does no more good to tell a building principal and his/her faculty that they will be held accountable for improving test scores than it does to tell the weakest hitter on a baseball team to quit striking out. What is needed is help, encouragement, support, and incentives, not blame.

Outside of a specific context it is difficult to suggest specific policies that school boards might institute to foster creative problem identification and creative problem solving, for these are more matters of tone and texture than policy. Yet, such matters cannot be or should not be too easily dismissed. The creative capacities of teachers and building administrators cannot be liberated in an atmosphere of fear and threat. If nurturance and support are expected, at the bottom, then an attitude of nurturance and support must start at the top. The creation of such attitudes is a result of management and, as such, is a result for which superintendents and school boards are most accountable.

Local policymakers should recognize that change and improvement is a nonlinear process. Sometimes specific change efforts will produce, in the short run, what appear to be undesirable outcomes. For example, except in unusual cases, one of the short-term consequences of moving a faculty which has grown comfortable with a bureaucratic structure to the more collegial and non-bureaucratic forms of governance suggested by the idea of teacher as executive, is likely to be a temporary decrease in faculty morale, an increase in faculty turnover, and an increase of complaints that the administration is not doing its job. What policymakers must keep in mind is that the norms and values which give high priority to disciplined problem-solving and continous improvement are substantially different from the norms appropriate to routinization, standardization, and defense of the status quo. In a hostile environment, problems are perceived as

threats to the social order. In beleaguered and threatened organizations, problems are to be coped with, dealt with, hidden, or submerged as quickly as possible so that the real business of the organization can continue (i.e, the business of doing business as usual). In effective knowledge-work organizations, including effective schools, problem seeking and problem solving are the lifeblood of the organization. Problems are accepted as normal events and not as signs of organizational pathology. Failure to solve problems, in the short run, is tolerated just as success in solving problems is, in the long run, rewarded.

In summary, if boards of education and administrators are serious about encouraging the restructuring of schools, they must be willing to do some things which are not cha.acteristic of boards of education and managers of public bureaucracies. Most of all, they must be willing to tolerate problem causing as well as problem solving, and they must recognize that change and improvement cause as well as resolve problems. Thus, policymakers and other administrators must develop a long-term view and the patience that such a view suggests. At the same time, policymakers and top administrators must choose and emphasize key results that convey impatience and an action orientation.

Continuity of Development

Promoting and developing the conditions described in the preceding sections of this paper are critical if the intent is to foster the systematic restructuring of the schools. However, clear goals, measurable results, a commitment to the development of human resources, and a problem-solving orientation are likely to have little significant impact if school boards and superintendents fail to appreciate that school improvement is a long-run developmental process rather than a short-term result. Effective schools are not simply good schools. Effective schools are schools in which there is a strong commitment to getting better and being more effective, and this commitment is shared by almost all who participate in the life of the school. Somehow the persons who function in these schools have, in Drucker's terms, "learned to run at one and the same time an existing managerial organization and a new innovative organization" (Drucker, 1973, p. 31). To achieve this end, they have learned to think in terms of effectiveness rather than efficiency and in terms of the long run as well as the short run.

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It is one of the unfortunate facts of public life that political realities are such that efficiency (i.e., productivity at the lowest cost in the shortest period of time) rather than effectiveness (i.e., increasing that capacity of the organization to meet future demands as well as present needs) is likely to be a prime value. Furthermore, there is a strong drive for short-term quick fix answers rather than long-term fundamental solutions.

There are, of course, many reasons for this condition. For example, school systems that experience high turnover in the superintendent's office have a difficult time maintaining continuity of direction. Faculty turnover and school board elections can have similar effects. It seems clear, however, that one of the greatest barriers to the establishment of the norms of continous improvement (Little, 1982, pp. 325-340) is the uncertainty of continued funding and continued support for projects once started. Indeed, based on research in which I am presently engaged (Schlechty and Joslin, 1986), it seems clear that one of the greatest sources of resistance to change in schools and one of the greatest barriers to the development of commitment to the change process is the generalized view among teachers and building-level administrators that those who manage school systems and the boards that set policies for schools are unable or unwilling to sustain the momentum that is required to ensure continuous improvement.

Many of the factors which create the conditions that discourage continuous improvement are, in the short run at least, beyond the control of local boards and local superintendents. The introduction of a newly elected board member or the employment of a new superintendent will and should bring out some changes in direction. The tendency for schools to be budgeted on an annual basis and the lack of assured dollars (especially in the areas of research, staff development, and program development) are realities that cannot be avoided. In spite of these realities, there are actions that can be taken by school boards and superintendents which could serve to offset some of the negative consequences that these conditions produce. Some ideas along this line are these:

1. Existing school boards working with the present superintendent, the existing staff, and perhaps outside consultants could develop in advance a systematic orientation program for a new superintendent and perhaps for new board members. The development of such an activity should probably

not occur at the time new board members are being installed or at the time a new superintendent is being employed. Rather such an activity should be undertaken in a period of relative stability on the board and at a time when the tenure of the present superintendent is relatively secure. Planning for the identification and/or development of one's own replacement is a critical activity. Further, such planning, and the thought that it requires, should cause present board members and superintendents to take seriously the charge of identifying and articulating the image they hold of their school syste-

2. Local schoc. boards and superintendents should seriously consider the prospect of establishing an endowment fund targeted specifically for the support of school improvement projects. Such a fund, once established, could be used to provide individual teachers and school faculties with small grants to support activities aimed at sharing the inventions with teachers and administrators in other schools. Perhaps the most important addition of an endowment would be that it would make it possible, if only in a small way, for the school system to foster and encourage long-term development and to supplement these long-term commitments with whatever short-term funding might be available.

3. School boards could and should establish policies, procedures, and programs which make it possible to induct new teachers into the culture of the scho .. Faculty stability appears to be closely associated with effective schools (Purkey and Smith, 1983; Darling-Hammond, 1984). Unfortunately, given the demographics of the teacher work force, it appears likely that teacher turnover will increase dramatically over the next decade. (See Schlechty and Vance, 1983; Darling-Hammond, 1984.) Careful and systematic induction into the existing culture of the school is, in my view at least, one of the most promising ways to assure the continuity of experience that will be required when demographic forces are fostering discontinuity of experience.

The critical point is that those who run schools and those who make policies for schools, if they want to encourage fundamental restructuring of schools, must carefully weigh the impact of every decision they make on the ability of local schools to maintain continuity of experience. It is this continuity coupled with the emergence of a school culture which honors, rewards, and inspires outstanding performance that is the critical component of the second wave of school reform.

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Personnel Policies and Personnel Issues

Conceiving of the teacher as an executive, the principal as a leader of leaders, and the superintendent as the chief executive officer could cause us to reconsider the nature and function of teacher education and administrator preparation. Indeed, if the images of schools that I have characterized here were to be embraced, it would likely cause a revolution in the areas of staff development, personnel hiring, and job placement and would refocus reform proposals regarding teacher education as well. Teacher education might well be conceived as management development. Arguments regarding certification and alternative certification would be fundamentally reformulated. For example, it might be that one function of teacher education should be to certify that teacher candidates know how to teach. Both the preparation of teachers and the preparation of administrators would be based on the assumption that what is necessary is that they be prepared as leaders.

am not suggesting that teachers and administrators would abandon the idea of being a part of a knowledge and research-based profession. Indeed, I would argue exactly the contrary. What I am suggesting is that the continuity of experience and the continuity of careers would be greatly enhanced if they were based around core understandings regarding management and leadership in environments where the primary task is to work on knowledge.

Perhaps more important, viewing the school as a knowledge-work organization and the superintendent as the chief executive officer of such an organization should cause state-level policymakers to be at least as attentive to issues related to the identification, development, and continuing support of top level school-district administrators as they have become with the recruitment and training of teachers and building principals. Gary Sykes has referred to teacher education as higher education's "dirty little secret." As a former chair of a department that prepared administrators, a present member of a department of school administration, and one who has had the opportunity to interview numerous deans of schools of education and many superintendents, I feel secure in saying that one of the differences between the perceived quality of teacher education and the perceived quality of administrator preparation (i.e., the preparation of top level administrators) is that there are no secrets about the latter. Most agree that there is much need for improvement in the kinds of training and support provided for superintendents, or more teachers would become superintendents.

A Conclusion

I have not tried to present the reader with a blueprint for schools of the future. Rather, I have attempted to present the reader with a vision of how schools might be reinvented so that they may become learning organizations, what Sizer (1984) has referred to as essential schools.

Some will insist that I have pushed the business metaphor too far just as I have been accused of pushing the medical metaphor too far. Perhaps, however, I am not convinced that viewing students as workers, teachers as executives, and principals as leaders of instructors is argument by analogy or analysis by metaphor. Rather, I believe that schools have long been the original knowledge-work organizations, and businesses are simply becoming more school-like. Indeed, one of the fundamental problems confronting American business is how to motivate, manage, lead, and direct individuals whose primary task is to work on and with knowledge and knowledge-related products. This does not seem to me to be dissimilar from the fundamental problem which confronts those who must invent schools of the future.

There is, of course, the danger that too close an adherence to the knowledge-work model could cause education to subvert its critical function (i.e., the function of producing citizens whose knowledge is critically held) and to subvert the liberating functions to reactionary ends. All visions are dangerous and can lead to excess, but without vision, the future will happen to us. With a clear vision, we are in a position to help invent what happens.

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ORDINARY PEOPLE, EXTRAORDINARY WORK

Notes on Schoolteaching at the Turn of the Century

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INTRODUCTION

If "schoolteacher" has become a quaint title, there is reason to refurbish it. The kind of teaching to be discussed here occurs in schools--not in families, workplaces, churches, theaters, universities, municipal parks, back alleys, or any of the other places where we engage in the pervasive activity of teaching: telling, showing, encouraging, correcting, advising, inspiring. The constant linking of the words--school and teacher--serves to stress the inescapable welding of the two activities and institutions. One cannot think of the teaching without the schools, or the schools without the teaching. Reforms addressed to one must deal with the other. So this essay will speak of schoolteaching, schoolteacher education, schoolteachers' organizations, and schoolteachers.

One important question today is this:

> How can large numbers of ordinary people be well prepared and organized to do the extraordinary work of schoolteaching?

American schools require more than two million teachers. No likely policy can ensure that all or even most of them will be drawn from the top of the academic class. Other sectors of society will compete for their share of the talent pool. Because they are so numerous, our teachers will be mostly ordinary persons in any foreseeable case (Lanier and Little, 1986). Improving schoolteaching will be less a matter of <u>selectivity</u> than a matter of <u>productivity</u>, both in teacher education and in schools.

While the people who enter schoolteaching are mostly ordinary, their work is not. Schoolteachers are entrusted with the nation's children, and with their prospects. As trustees, schoolteachers owe a high standard of care and loyalty to their students. To other trustees of children, teachers owe an explanation of the purposes and consequences of their actions. That dual task is complex, subtle, and demanding.

Every day, teachers make consequential decisions regarding the purposes of schools. Every time that some students learn a lesson and others don't, teachers balance excellence and equity. Every time teachers organize a class, unit, or lesson, they balance the important purposes of learning subject matter, learning to like learning, learning to respect each other, and learning to work together.

The children learn important lessons not only from the subjects their teachers address, but also from the ways in which teachers teach and treat children, from the ways in which they organize children for coexistence and learning, and from the ways they conduct themselves in the presence of children. Teachers must combine these different ways of teaching children to produce civil and productive classes and schools.

Schoolteachers work against a clock. It measures minutes, dollars, opportunities, and childhood spent. While all these resources might be better spent, there is no escaping the race against time. Moreover, children are a scarce resource (see Hodgkinson's essay); we will want more of them to know more, and we already keep them childlike longer than is good for them.

Because they are entrusted with children, schoolteachers decide how an appreciable share of the nation's resources will be spent. Moment by moment, they must strike the best bargain they can. This is extraordinary work, deserving greater respect and support than it typically receives.

Autonomy, Accountability, and Advancement: Linchpins of the Profession

Likewise, it requires particular arrangements. The first is a provision for autonomy, in which schoolteachers exercise sufficient judgment and latitude to use their talents fully on behalf of the students in their care.

The second is a provision for accountability, in which schools and schoolteachers are both responsible for their performance and responsive to public concerns, policies, and initiatives, and in which schoolteachers are responsible to each other in the professional fashion.

The third is a provision for advancement, in which schoolteachers are adequately prepared to begin that work, are expected to get better at it every year that they teach, and help each other advance. Further, they are supported in these efforts, and gain both recognition and influence for them.

Under the present demands for improvement, the classic tension between autonomy and accountability is particularly acute. Opportunities to relieve that tension will be found primarily in the provision for advancement. That is, as we get better at helping schoolteachers to get better, it becomes more likely that teachers can be both autonomous and accountable. This essay seeks that solution in the schooling of schoolteachers, in professionalization in the school, and in school-level leadership by teachers and administrators.

SCHOOLING SCHOOLTEACHERS

Becoming a schoolteacher takes time--time to acquire a range of dispositions, principles, knowledge, reasoning, and skills; time to organize those in a professional stance and repertoire; and time to practice the analysis and explanation of teaching.

Higher education alone cannot prepare teachers to teach well; that requires considerably more time and supported practice than a teacher education program is likely to provide. Higher education can prepare teachers well to learn to teach. It would do so by concentrating on dispositions, principles, knowledge, and reasoning. Schoolteachers would acquire the supporting skills and polish the teaching repertoire during a period of supported induction and over a career of reflective practice.

The general plan of a teacher education program can be discussed at length. To focus instead on the execution of such plans, this essay assumes a working stance of three points.

--Gatekeeping: Entrance into Teacher Education

First, it may be a waste to spend more than a little time worrying about the quality of students entering teacher education. A little can be done, and should be done expeditiously, in order to get on to more useful initiatives. In their review of the research on teacher education, Lanier and Little argue that it is inaccurate to stereotype teacher education students as uniformly mediocre. They argue that teacher education attracts a good share of highly capable students, but also attracts "too many lows." The lows' presence in sizeable proportions tends to depress the quality of the education courses they attend and thus to discourage the more capable students in their midst. (Lanier and Little, 1986).

Raising standards for entrance to teacher education is an option. The extreme of that strategy is to make teacher education entirely a graduate program with no undergraduate activity. Some institutions might be able to pull this off. In doing so, however, they would give up the

opportunity to recruit undergraduates who are considering what to do with their lives. They would give up the option of helping teacher education students to approach their undergraduate educations from the perspective of a thoughtful schoolteacher. And they would be attempting to accomplish in a year or two what might, for many students, better be achieved over a longer period.

If teacher education begins in the undergraduate years, teacher education programs may face another sort of problem in setting entrance standards. They would be declaring that some of the students their institutions admit as freshmen, or some of the students currently in good standing at their institutions, are unfit even to enter training as teachers. Or, they would be claiming materially greater ability than their institutions' admissions departments to select students accurately. When one considers the range of characteristics relevant to schoolteaching and the difficulties of measuring those characteristics, that is no small claim.

So another tack will be taken here; it is consistent with the emphasis on productivity over selectivity. It is to place highly engaging, productive, and demanding coursework at the front of the teacher education program, where it may serve to establish high expectations for teacher education students and coursework; screen in desirable combinations of competence, interest, and diligence; and screen out incompetence, indifference, and sloth.

--Flexibility Within an Extended Program

Second, pragmatic considerations might dictate the general form of a teacher education program. Education schools and departments would admit many aspiring teachers at the beginning of their second year in college. These students would graduate at the end of their fifth year with both a baccalaureate degree in the arts or sciences and a Master of Schoolteaching degree. Thus, teacher education programs would have time and opportunities to attract undergraduates to teaching, time to help schoolteaching students exploit their undergraduate studies from the point of view of schoolteaching, and time to help prospective teachers form and consolidate their initial approach to teaching. By virtue of the baccalaureate degree in another discipline, the general qualifications of schoolteachers would more clearly reflect the university or college as a whole, and not the school or department of education by itself.

A total of five years on campus would distinguish teachers from most undergraduates. The graduate instruction might be financed more generously than undergraduate teacher education tends to be.

Schoolteachers would receive a professional degree that is about right for an occupation that both must employ large numbers of persons and must maintain a standing in communities, among occupations, and in the university. Undergraduate institutions might enhance that standing by declaring that preparing teachers is a vital tool of liberal education and making the Master of Schoolteaching their only advanced degree.

Some persons become interested in teaching later in their undergraduate careers or after years of work in other fields. Advanced undergraduates could complete the teacher education program by foregoing some electives, delaying graduation, or both. Capable and mature persons who already hold baccalaureate or advanced degrees might complete the teacher education program in fifteen to twenty months by focusing exclusively on the education school's requirements. That is, the trade-offs among the duration of the program, the degree of concentration upon the required teacher education coursework, the character and quality of that coursework, and the caliber of students enrolled admit a range of effective patterns. Whether a given pattern is effective depends less on its general design than on its specific execution.

--Teacher Preparation as Professional Socialization

Third, a teacher preparation program's organization is as important as its stated curriculum. To be sure, the intellectual base for teacher education must be sound and well taught. It should include liberal education with a concentration in some subject areas; educational philosophy, theory, research, and practice; and an understanding of students' psychological characteristics and social environments. At the same time, however, schoolteacher education is a process of socialization, of joining a collective, adopting its aims, learning its knowledge and ways, and becoming a member with specific standing. The center of this socialization is the teacher education institution. In the same specific way that one may plan a curriculum, one may plan the organizational arrangements and patterns of interaction surrounding the curriculum. That organization will constitute a curriculum in itself; it is the main focus of attention in the remainder of this section.

Viewed as a professional organization, a teacher education program should include (1) systematic professional socialization founded in the curriculum; (2) specific guidance and advocacy regarding a liberal education; (3) a progression of responsible and reflective work with children, youth, and other schoolteaching students; and (4) a graduates' association. Those elements should be united by a series of passages--shared challenges and celebrations--that punctuate and typify periods of cumulative and collective effort.

Recruitment and Professional Socialization

Recruitment and professional socialization would begin with a challenge designed both to attract as capable a class as possible and to establish high expectations for their performance. For simplicity's sake, think of this activity as a course called "Schoolteaching." This activity would be designed collaboratively by teachers of teachers, and taught by the best of them. The course would be promoted to undergraduates; they would be encouraged to take it in their sophomore year. The course would have several purposes:

First, it would show schoolteaching as a demanding practice of social responsibility that calls for considerable labor, craft, scholarship and artistry. Both the topics addressed and the teaching displayed would reveal the intrinsic values and tasks that make schoolteaching a challenging and rewarding occupation.

--Using the Long Apprenticeship

Second, students would be engaged in identifying, organizing, and testing the views of schoolteaching that they bring to teacher education. By declaring how a poem ought to be presented to fourth-graders, how junior high school students could be interested in art, or how conflict should be handled in a classroom, teacher education students would begin to reveal and explore their own views of schoolteaching.

Prospective schoolteachers enter teacher education with a great many subjectively reasonable views of schoolteaching derived from their "long apprenticeship" as students (Lortie, 1975). Indeed, they tend to think that they have little to learn from teacher education (Lanier and Little, 1986). But to exercise principled judgment, to explain that judgment to others, and to work together professionally, prospective teachers must come to terms with other persons, other views, other evidence (Fenstermacher, 1978). They must progress from views that make sense to them individually to views that make sense not only to them, but also to others in the professional and scholarly communities, and to the other trustees of the children who will be placed in their charge.

They can test their initial views both against the views of schoolteaching presented in the course and against the teaching practiced there. They can begin to discipline their use of their experience as elementary and secondary students. For example, are they drawing on what they saw their schoolteachers do, or on their experience as students of those teachers? The difference can be important (Judith Green, personal communication). They can begin to place their most concrete views of teaching in context by addressing how a class should be organized to

achieve its several purposes, or how a school should be organized to support a variety of teachings. No other occupation's members have such extensive experience of that occupation before they begin training for it; that experience should be explored and exploited systematically.

The exploration of schoolteaching students' prior experience could be designed as collaborative research by education professors and schoolteaching students. Rules of inquiry would make the students' self-examination more systematic and visible and aid them in comparing their views. This same research should help the education faculty both to design instruction for their schoolteaching students and to contribute to the literature on professional education. And it should establish that a vital element of schoolteaching is inquiry, at which professors and teachers can cooperate fruitfully.

--Getting Better Together

Third, the schoolteaching course should organize its students as a self-conscious association that succeeds by thorough use of cooperative tactics. In part, this is a way of introducing schoolteaching students to cooperative learning strategies that they may find useful in teaching. More immediately, the association of students would be designed to help the students to get through "Schoolteaching," thus demonstrating the benefits and methods of collegial work. Throughout the schoolteacher education program, students would be encouraged and organized to work together, as a way of professional life.

--Taking a Schoolteacher's Point of View

Fourth, the schoolteaching course should engage the students in charting what they need to learn from a variety of classes throughout the university in order to be good schoolteachers. For example, a useful combination of curiosity and respect regarding cultural differences might be learned from anthropologists. The philosophy department might provide an adequate foundation in ethics. A history of science and technology could help any teacher to relate her teaching to these pervasive elements of students' environments.

For undergraduate students, this element of the course serves as an introduction. For students who already hold a baccalaureate degree, it provides opportunities to review their earlier work for use in schoolteaching. At the same time, it should liberate them from the view that all they need to know is the subject matter they intend to teach. It should prepare them to go at their university studies with some enthusiasm, and from the point of view of a thoughtful schoolteacher.

--Setting a Standard

Finally, the first course in schoolteacher education should show students how carefully taught, organized, and supervised they will be throughout the teacher education program. This information, exemplifed by the rigor of "Schoolteaching" itself, would help students to make sound decisions about proceeding in the schoolteaching program. Many of the students may be attracted by the rigor and the matching support. Some of the students will, by virtue of the rigor and despite the support, either forego or lose their options to proceed further in the schoolteaching program.

Schoolteaching must both attract large numbers of persons and attain higher standards of performance. Potential teachers' first contact with schoolteacher education should make them want to be teachers in the worst way. But it also should make them doubt that they can be good ones, or even that they can get through the course. Then it should get many of them through it with a concerted display of the powers of good teaching and collegial effort.

Organized Guidance and Advocacy

Organized guidance and advocacy also would begin early in the program. Its aim is to enable undergraduate schoolteaching students to make the most of the opportunities in higher education and to integrate their education studies with their other studies. Moreover, it ensures their participation in the more rigorous offerings of the college or university. The program of guidance and advocacy would be accomplished by groups of professors and schoolteaching students working together.

Education professors would mount an ongoing program of action research in which they gather information from, and seek alliance with, arts and sciences professors. This process could be based on two main points. First, arts and sciences professors have a direct interest in schoolteaching: schoolteachers prepare their undergraduate students and, to an appreciable extent, their graduate students. What professors do not equip schoolteachers to do, they may have to do themselves. Second, schools of education depend on the arts and sciences not only to present the knowledge of various disciplines, but also to engage teaching students in those disciplines so that they can engage their students in turn. Arts and sciences professors can demonstrate how a thorough understanding of a subject contributes to teaching it.

In this action research program, education professors would provide information about the aims and needs of teacher education and in return acquire information about arts and sciences offerings: course aims, syllabi, texts, intentions, and procedures. This information, systematically collected, would provide part of the data needed for organized guidance of schoolteaching students. If the college or university maintains a program of course evaluation by students, that information also might be obtained for use in guidance. The school of education would work toward an automated ability to construct special schedules, for all schoolteaching students, that meet university requirements as well as requirements of the students' major departments, and draw on the continuing study of university offerings to get schoolteaching students the best of what the university has to offer at a given time.

--Arts and Sciences Professors as Teachers of Teachers

Education professors would attempt to engage arts and science professors more directly and specifically in the education of schoolteachers. The burden would not be great; the arts and sciences professors could accomplish their part in the course of their usual teaching. They need only agree to be studied by the schoolteaching students who enroll in their classes.

Very early in their course of study--perhaps in the Schoolteaching course--schoolteaching students would be taught to observe and analyze teaching. They would learn to collect and construct cases: carefully described instances of teaching that bear analysis and annotation from various points of view. A highly informative course syllabus, a particularly enlightening presentation of a critical idea, and a specific organization of student groups all might be material for such cases. In addition to case collection, schoolteaching students would be taught to prepare more general and extensive analyses of their courses. As a condition of good standing in the teacher education program, and perhaps for academic credit, students would submit at least one case and a general analysis for each course they take from a professor who has agreed to be studied in this way.

For their part, the professors who have agreed to be studied might elect to teach as they otherwise would. Or, knowing that someone is trying to learn both from what they teach and from the way they teach it, they could take a more specific interest. For example, they might call attention to their teaching practices in class or discuss teaching in their office appointments with schoolteaching students. Provided some assurance that schoolteaching students are paying attention, arts and sciences professors may find it more feasible to contribute to their education as teachers.

By these arrangements, schoolteaching students would practice observing, describing, and analyzing teaching. They would consider how each course's content could bear on some aspect of schoolteaching. They would pay close attention to the ways in which their major professors approach their content. They would contribute to a case literature that enriches their own education as teachers and contributes to the education of succeeding classes. And they would contribute to an ongoing program of collaborative research from which they derive direct benefit: guidance to engaging and instructive courses.

This enterprise needs an organization for screening cases and course analyses submitted by schoolteaching students, providing those students feedback on their submissions, awarding any credit they may receive for those submissions, maintaining the data base, conducting analyses of the data, and organizing results for use in the guidance program. Advanced schoolteaching students, educational research students, higher education students, and other education students might be engaged creditably in that work. Professors of education would stand at the head of an organization in which persons destined for various educational occupations can learn to work together fruitfully.

--Constructing an Alliance for Schoolteacher Preparation

In time, education professors may be able to engage in advocacy with their colleagues in arts and sciences. Suppose that schoolteaching students need courses that reveal more of the structure and methods of disciplines than undergraduates typically are provided. By way of the program of interviewing, professors of education would seek allies in the relevant departments who also want such instruction for undergraduates and are willing to undertake it. The school of education might help to establish the need for new or revised courses. And it could use its acquired influence on schoolteaching students' schedules to provide some students for those courses.

Constructing the system of guidance and advocacy may raise some delicate issues. For example, even if arts and science professors agree in principle to be studied by the schoolteaching students in their classes, they may want assurances that the information collected will be handled responsibly. The school or department of education cannot organize to study teaching in the arts and sciences without raising some questions about what it is up to.

Education professors can make it clear that they do not aim to become the pedagogical critics and evaluators of their university peers. Rather, they seek a partnership. Schools of education depend on their colleagues in arts and sciences to shed disciplined light on various aspects of schooling and teaching, to convey the content that schoolteachers will teach, and to show how that content can be handled in the course of teaching. Schools of education would approach their colleagues in other fields not as evaluators of university teaching, but as trustees of the university's responsibility for the education of schoolteachers.

Provided that arts and sciences professors get appropriate institutional credit for their teaching and other assistance to teacher education, they should be organized primarily as a dining and debate club called "Friends and Enemies of Schoolteacher Education." This outfit will be more effective and fun than a University Committee On Schoolteacher Education. If there must be a University Committee, then the informal activities of the "Friends and Enemies" will be doubly important.

Reflective Experience

An organized sequence of progressively more responsible and reflective work with children, youth, and less advanced schoolteaching students would begin in the undergraduate schoolteaching student's junior year. This sequence could include observation of working teachers, tutoring, small group instruction, and other activities in which schoolteaching students observe, bear, and reflect on the responsibilities and conduct of teachers.

John Dewey (1904) distinguished two "controlling purposes" in such "practice work." The "apprenticeship" is to give "teachers in training working command of the necessary tools of their profession; control of the technique of class instruction; skill and proficiency in the work of teaching." The "laboratory" uses "practice work as an instrument in making real and vital theoretical instruction; the knowledge of subject-matter and of principles of education."

Neither of these purposes can be chosen over the other in general; both kinds of practice are needed. Since schoolteachers have only a short time in higher education to concentrate on schoolteaching's explicit knowledge, the practice work sponsored by higher education should emphasize the "laboratory point of view."

The sequence of guided experience would culminate, in the first half of the fifth year, in full-charge teaching with close supervision and support by a trained mentor teacher. Summer work with the mentor would enable the student to try everything from choosing goals and preparing units to establishing rules and routines in the mentor's classroom.

Time constraints alone may prevent university personnel from providing sufficient supervision to support practice work consistent with the laboratory point of view. As an alternative, the teacher education program could work with the sponsoring organizations, supervisors, and mentor teachers to see that the students are carefully supervised in a manner that promotes reflection. This work need not fall solely on teacher educators. Effective collegial practices have broader relevance in schools, e.g., for induction. Promoting such practices could be part of the school of education's program of research and service in nearby schools and districts.

Moreover, schools of education have some obligation to conduct their own programs in a manner that tends to reduce the schism between the preparation of teachers and the preparation of school administrators. For example, a school of education could teach all of its educational administration students the importance and character of supervision. And it could track some of those students to promising sites for practice work for teachers in training.

Challenges and Celebrations

The series of passages--challenges and celebrations--began with the Schoolteaching course. The next could be the examination for master's candidacy. The next would be the full-charge practice teaching under close supervision. Some final passage is needed. Think of it as a course called "Schoolteaching II." It would be required of all schoolteaching students in the last half of the final year, and have several purposes.

--Master's Project: A Case Study of Schoolteaching

The first is to maintain the university's relevance and influence up to the day of graduation. A master's project would be designed to require and help schoolteaching students to review and organize their experiences at the university. Students would draw on their liberal education, their

professional education, and their laboratory experience to construct a carefully designed and interpreted case of schoolteaching. The student would describe the material for the case--an instance of schoolteaching. The student would annotate or interpret the case, as would the student's mentor teacher, the student's education school advisor, and an advisor from an arts and sciences department. With those commentaries, the student would complete the case as a finished document, then present and defend it before the advisors sitting as a committee. The student's work would be judged according to its integration of theories and practices, substance and method, insight into teaching, and clarity as an explanation of teaching.

As they approach graduation, schoolteaching students would learn how the common experiences of new teachers tend to shape their outlooks and practices. Particularly, the new teachers would be introduced to the elements of well-organized induction to schoolteaching. In case adequate induction support has not yet been organized at their first schools, they would be trained how to express their disappointment and to recruit their own coaches and supervisors.

Finally, the culminating activities would restore a sense of common endeavor among schoolteaching students who have been drawn apart by progress toward their teaching specialties. This would be accomplished partly by the sharing of master's projects, and partly by projecting the common predicaments of new teachers. The students should leave both with strategies for their first teaching assignments and with confidence in their ability to explain themselves to other trustees of the children placed in their charge.

As a complement to the university's commencement, the teacher education program would recall and celebrate the new schoolteachers' trials and accomplishments at the university, and so instruct them in the value of passages and rituals in a proud occupation. A fitting conclusion to the students' career in higher education would be to take a Socratic oath, and to be hooded by their mentors both from the school and from the university.

A Graduates' Association

An organized program for graduates would begin at least a year before they graduate. This program would be designed to foster a refined and prideful tradition of schoolteaching associated with a college or university and with the evolving strengths of a particular teacher

education program. It would invite graduates back for refreshment in their major subjects, to satisfy continuing education requirements, to pursue additional degrees, and to participate in the education of schoolteaching students.

Where possible, seniors, graduate students, young teachers and veterans would study schoolteaching together. They would recall and anticipate their histories as teachers, make useful connections such as student teaching placements, and otherwise cultivate and celebrate their shared tradition. Go Harvard! Go Backwater!

This program would not attempt to follow graduates into the many schools to which they might go. Rather, the school of education would regard and promote systematic induction as a local professional and administrative function.

Conclusion

How can large numbers of mostly ordinary people be well prepared and organized for the extraordinary work of schoolteaching? The contribution of teacher education is to bring aspiring teachers into a community of principle, of ideas, and of inquiry, and so to prepare them to enter and organize such communities in the schools where they will work. In important ways, schoolteacher education is the first induction to teaching. And it is as much an induction to a kind of organization as to a body of knowledge. That organization should be designed and carried out as carefully as the teacher education curriculum.

THE SAME BOAT

Professionalism and Leadership in the School

In one view, the professionalization of teaching and the strengthening of school administration are at odds. In the legends of administration, administrators are bold captains who set both the course and the character of their schools. Schoolteachers are their crew. Schoolteachers' organization activists are sea lawyers and mutineers. In the legends of unionism, schoolteachers' organization leaders are popular heroes, champions of the masses. Administrators are the oppressors and overseers. In both of these legends, influence is a fixed commodity; one's gain will be the other's loss.

In another view, school administrators and schoolteachers' organization activists look less like bold captains and popular heroes than like two toddlers tussling over a Saint Bernard's leash. They will be lucky to lead even if they do pull in the same direction. If the big critter follows, that will be attributable mostly to its good heart and good sense--and to the fact that it was headed in their direction anyway. In this view, the problem is not who will have greatest influence on schoolteaching, but how any party will gain any appreciable influence on the practice.

A Common Predicament, A Common Opportunity

Here, the view will be that school administrators and schoolteachers' organization activists constitute legitimate organizations with different purposes, natures, and loyalties that complicate the relations between them. Nevertheless, they share a common interest, a common predicament, and a common opportunity.

Their common interest is that their success depends increasingly on the closer cultivation of classroom teaching. Their common predicament is that neither of them now is in a good position to cultivate schoolteaching. Their common opportunity is a set of strategies that can be used by either of them, and that are more likely to work if supported by both of them. In this view, influence is a variable commodity; if administrators and schoolteachers' organizations approach each other wisely, both of them can gain greater ability to achieve their legitimate ends.

--Their Common Interest

School administrators are responsible to the public for the performance of schools, and are called on to improve that performance. The performance of schools depends chiefly on the actions of teachers.

So school administrators' success and prestige depends increasingly on their ability to cultivate classroom teaching. The current claim for effective principals is that they have learned how to do so.

Similarly, schoolteachers' organization leaders are responsible to teachers not only for advancing their economic interests and prestige, but also for promoting their satisfaction in their work. When the public is demanding improvements, and when teachers tend to draw their satisfactions from seeing students learn, teachers will tend to be happiest, most respected, and best paid when they teach best. So the success and prestige of schoolteachers' organizations also depends on their ability to cultivate classroom teaching.

Put another way, both school administrators' and schoolteachers' baser and higher interests tend to require gains in the daily performance of most teachers and gains in organization of the schools where they work. While some of the interests can be satisfied by the mere appearance of reform, others cannot. Moreover, it can safely be assumed that the vast majority of the participants would prefer real gains to reform rituals. It is a lovely--if somewhat disconcerting--situation to have so many of the players in the same boat.

--Their Common Predicament: Condition of Teaching

Schools are are not organized for systematic improvements in teaching. Whether teachers' organizations or school administrators undertake the initiative, they must address the same conditions. Foremost among these conditions is that hardly anyone has much influence on schoolteachers' classroom practices

Prospective teachers tend to approach schools of education believing that they have little to learn, and to leave schools of education believing that they learned little of value (Lanier and Little, 1986). When the short time spent at university is set against a life in schools as students and teachers, that is not surprising.

The research on teaching is recent and modest. Educational researchers and schoolteachers are not noted for their close relations. Rather, the pace of application of educational research generally has been described as problematic, either because it is glacial (among teachers) or because it is hasty (among policymakers).

School administrators labor under a variety of burdens; specific matters of teaching have been low on their list of priorities.

Administrators' supervision and evaluation generally have not earned high marks with teachers. Administrators and schoolteachers' organizations are caught in a history of conflict or grudging cooperation in many places.

Inservice education in many districts is quite limited, particularly when stacked against emerging views of the stringent demands of improvement. One informed and eye-catching comment is that:

> Relatively few persons, having mastered a new teaching skill, will then transfer that skill into their active teaching repertoire. In fact, few will use it at all. Continuous practice, feedback, and the companionship of coaches (are) essential to enable even highly motivated persons to bring additions to their repertoire under effective control. (Joyce and Showers, 1983, p. 4.)

That comment is not that trainers are inept, but that the improvement of teaching is considerly more demanding than we typically provide for.

Schoolteachers work in virtual isolation (Feiman-Nemser and Floden, 1986). They rely primarily on their own experience in the classroom, exerting little or no influence on each other's practices. Indeed, they generally lack the means, such as a shared craft language or norms of rigorous exchange, to do so. Without sufficient interaction such language and norms cannot form. Rather, teachers tend to sustain norms of autonomy and privacy that discourage individuals from seeking more useful and rewarding relations with their colleagues. They have had little reason to do otherwise.

--Earned Leadership of Teaching

Here and there, teachers have been able to work among persons who have earned leadership of teaching. By some combination of circumstances and initiative, they have formed more vigorous and useful professional relations not only with their fellow teachers, but also with administrators, trainers, and others who have found the intent and skill to help them teach better.

Earned leadership is the stature needed to give influential advice and guidance to a self-respecting member of a substantial occupation. That stature is gained by a continuing demonstration of good judgment and skill in regard to the matters at hand. At present, few persons exercise earned leadership in regard to the central practices of schoolteaching. The immediate task for all of the parties to schoolteaching is to attain it.

A Shared Opportunity for Administrators and Teachers' Organizations

School administrators and schoolteachers' organizations are the main players in the schools. Their shared opportunity to influence teachers' classroom practices and norms of professional conduct includes three points of leverage. The first is an organized period of induction that helps young teachers to make good starts in the classroom while it further socializes them to rigorous professional interaction. The second is extensive and effective continuing education, including implementation support in the classroom, that could promote and sustain a shared body of professional principle, knowledge, and craft among experienced teachers. The third is a shared structure of leadership, including both teachers and administrators, that possesses the stature and energy to design and carry out induction and continuing education on the large scale that is required.

--Induction

Regarding induction, one may note that there seems to be no traditional celebration for a schoolteacher receiving tenure. Perhaps that is because there usually isn't much to celebrate. A newcomer has been tossed into a tough situation with little or no help, and has survived for a few years without giving cause for dismissal. So, perhaps, there is no one to lead the celebration. No one shared the novice's struggles, failures, and triumphs first hand; guided the newcomer through; and so can tell the tales with humor and pride in the shared achievement. And, perhaps, there is no one to witness the celebration, no one whose sense of teaching should be pleased by those tales, who should hear that the newcomer showed both principle and craft, and whose nod of approval and acceptance is needed.

A far different scenario of teacher induction may be envisioned, one that would make the awarding of tenure an event to be celebrated. In this scenario, principals and mentor or master teachers could greet every new teacher as a matter of course, and explain how close induction support is "just the way we do things around here." The new teachers would not be offered help "if you need it;" they all do. They would not be left to try to learn, by themselves, to teach.

They would be asked to sit and plan, stage by stage, how they will begin to draw both on their education and on the experience of a faculty to master the work of schoolteaching. They would learn how, with support, they can take the initiative to shape their own development as

schoolteachers, rather than being shaped by the powerful forces at work in their class ooms. For example, they would learn how to establish the teaching an. management routines that enable them to get on with what they came to do.

While working with the principal and mentors n and outside their classrooms, they would learn that the teachers in the school share a set of views and practices of teaching that constitute standards to be met. For example, a teacher needs to exploit a textbook, not just live with it. That means producing a variety of amendments and additions, materials and metaphors that make the textbook work for the students in the room.

In the course of formal and informal sessions with other teachers during the year, new teachers would learn how a faculty's views are found and negotiated, and what they are, e.g., what content and purposes would lead a teacher to choose direct instruction or inquiry projects, or mix them in an interesting and efficient balance.

Continuing work with the principal and mentors would hel, new teachers to understand the explicit elements of the faculty discussion, detect the tacit knowledge it contains, and pursue the standards carried in the conversation.

Schoolteachers who respect their work would not suppose that it can be mastered in a year. The induction program for new teachers would extend three or more years. Its aim would not be just to help the newcomer survive for a few years without giving cause for dismissal. Rather, its aim would be to help the newcomer to attain the standards upheld in the school, and to start contributing to the refinement of those standards. When the newcomers get tenure, there should be something to celebrate, someone to lead the celebration, and a group of persons who should witness it, nod, and admit the novice to the ranks of practitioners.

--Shared Continuing Education

Organized induction depends upon a faculty that shares some views of teaching that are influential in the school. That is, these views constitute standards against which teachers are judged. Few faculties now harbor such standards. There is little or no way they could do so. They work in isolation. The motto and conversation-stopper tends to be "Well, we all have our own experience and philosophy, don't we?"

Particularly, they rarely see each other teach: choose goals for a unit, plan a lesson, construct a test, rearrange the materials in a textbook, give a lecture, arrange the desks, monitor groups, field a question, check for understanding, deal with an insult, or spot a

neglected child. To be sure, they get glimpses of these things. And they may try to describe such happenings to each other. But those glimpses are not a base for the kind of precise, powerful conversation that matches the the complexity, sublety, and pace of schoolteaching. Moreover, there are aspects of the work that talk cannot get at; they call for trading both performances and words.

Schoolteachers pay a great price for their current form of autonomy. Because they are isolated, and because they seldom are watched skillfully, they can spend entire careers without adequate support for mastering their work. They can spend entire careers without substantial intellectual stimulation from professional company. And they can spend entire careers without receiving the form of recognition or praise that can come only from someone who is present at the work, prepared to see what is going on, and prepared to describe it to the teacher. They can pack up their boxes and go away at the end, having left their marks on hundreds of students, but no mark at all on teaching.

Shared continuing education is needed both for the application of research on teaching and for the formation and maintenance of a shared body of professional principle, knowledge, and craft among teachers. Appreciable improvement here will require a substantial increase in the volume of shared continuing education, and steps to attain a high standard of quality in that education, and a consistent system of implementation support in the classroom. There is little prospect of attaining higher standards in teaching when rigorous professional exchange is rare.

--Leadership by Teachers

At present, there are strong demands to recognize, reward, and employ the differences in competence among teachers; merit pay, master teacher, and career ladder plans are being explored or tried in many places. Substantial improvement in schoolteaching is not plausible without intensive and extensive support. Schoolteachers are the only likely source of instructional leadership on the scale that is needed.

Teachers' present stance of nominal equality is tenable only so long as they remain isolated from each other. Unless teachers remain in their present isolation, they will more often see each other work, and work together. They will take each other's measure, as teachers and as colleagues. Leaders will emerge from the interaction. Fairness will demand that they receive some formal recognition and compensation. That will look somewhat like a career ladder, a mentor or master teacher program, or a merit pay program.

The question on the table is not whether there should be greater leadership by teachers or whether teachers will be more accountable to each other or to leaders among them. The question is whether that leadership will be soundly based and productive--whether it will be earned. The form for recognizing differences among teachers is likely to bear directly on the prospects for earning leadership.

If "merit pay" means basing relatively small pay differences on annual evaluations, it is likely to leave the merit pay recipient in a precarious position. Unless other teachers believe that the evaluation system is capable of valid and refined distinctions in the proficiency of teachers, they are likely to think that the distribution of merit pay is determined largely by chance or favoritism. Unless the merit pay structure promotes interaction among teachers, the merit pay recipients will have no way to show that they deserve their bonuses. On these grounds, merit pay apears to be seriously, if not fatally, flawed.

Career ladder initiatives tend to involve time- and energy- consuming negotiations to define the ladder, and equally absorbing procedures for placing teachers in the ladder. The struggle with the formalities threatens to distract attention from the day-to-day exchange and leadership that make the ladder legitimate and productive. Thus, the formal scaffolding can be mistaken for, or even replace, the pattern of professional interaction and leadership that the designers set out to build (Phillip Schlechty, personal communication). Full blown career ladders appear to be too ambitious, for now.

Mentor and master teacher initiatives explicitly call for professional exchange and leadership. By the introduction of a single distinction, they avoid the formal complexities of a full-blown career ladder. But their success is by no means guaranteed. The culture of isolation that currently prevails among teachers is not easily displaced by norms of professional exchange. The form, purpose, and character of distinctions among teachers easily can become a bone of contention between school administrations and schoolteachers' organizations. California, for example, has faced considerable difficulty in introducing the single, presumably modest distinction called "Mentor Teacher" (Bird, 1986). For now, it will be sensible to learn how to make these relatively modest initiatives work.

Both schoolteachers' organizations and school administrations can, in their different ways, defeat or severely hamper the emergence of earned instructional leadership by teachers. If they approach leadership positions for teachers as a contested resource rather than a shared

resource, they are likely to miss their shared opportunity. Their alternative is to approach the cultivation of leadership as a shared task, design a joint initiative, and follow it through together. An extended analysis of the possibilities appears in From Teacher to Leader: Training and Support for Instructional Leadership by Teachers (Bird and Little, 1985).

In these ventures, administrators and schoolteachers' organizations should be patient with each other, and others should be patient (if persistent) with them both. To gain the mentor's kind of influence with teachers, school administrators must grant the mentor's kind of influence in the district. To support instructional leadership by teachers, schoolteachers' organizations must make a transition from solidarity based on nominal equality to solidarity based on accepted and useful differences. Neither adjustment is trivial.

Sharing the Boat

Leadership by teachers is at odds with leadership by school administrators only if we continue to assume that a school should be as frail and fallible as the lone person who happens to be its formal head at a given moment. Or, as frail and fallible as the isolated individuals who happen to teach in its classrooms at the same time. Leadership by teachers is at odds with leadership by administrators only when we see schools as mere collections of individuals, barely linked by a building, a formal chain of command, and some policies.

Increasingly, it is recognized that schools' productivity depends on their specific characteristics as organizations. Schools with comparable student bodies can produce substantially different results depending on their "ethos," the specific character in which they are unified (Rutter, et al., 1979; Rosenholtz, 1985). Principals contribute to those results less by direct management of individual school activities and events than by shaping the policies, traditions, norms, and habits that constitute the character of the school (Dwyer, Lee, Rowan, and Bossert, 1983).

The formation of collective influence on schoolteaching presents essentially the same prospects to administrators as to teachers. Both will have less individual autonomy, but more company and support. For most schoolteachers, the practical choice is to be master of not much, or practitioner of an extraordinary occupation. For most principals, the choice is to have great influence in a frail organization, or modest influence in a strong one. These choices should not be hard to make.

--New Norms and Traditions in the Schools

New relationships among administrators and teachers will be needed. These relationships are difficult to specify in labor contracts, but they are well within the range of phenomena that are routinely governed by informal norms. They can be fixed by an organizational tradition that is well known and valued by all the participants, that is supported both by the district administration and the schoolteachers' organization, and thus provides effective grounds for action if the tradition is offended.

Promoting a shared structure of leadership by administrators and teachers will take effort and time. They will have to describe, enact, sanction, support, and defend the behavior and expectations that constitute the desired norms of leadership and professional exchange (Little, 1982). For example, a principal, department heads, and a faculty could undertake, as a general matter, to establish regular and supportive observation of all teachers. They might negotiate the general aims and ground rules of this system for the school as a whole. The immediate object of the observation would vary by department. The math department might employ it to sort out the department's curriculum. Social studies might support experiments in student grouping In either case, the observation procedure would be tied into the department's matter, practices, and aims.

The observation system will not be established easily. Given the present culture of isolation, someone is likely to propose that such a system of observation should help each teacher to advance just that aspect of her teaching that she wants to advance. Without quarreling with the proposal in general, one also can make two comments about it. First, it tends to confirm the notion that teachers have no common interests, pracices, aims, or responsibilities that transcend or supercede individual ones. That is a reasonable definition of a non-profession. If the aim is to forge a profession, scarce occasions for exchange might be directed to doing so.

Second, the ideal of individual support makes what well may be an unmeetable demand on the observation system. It proposes that the faculty as a whole is able to provide every teacher with support worth having on any and every part of the teaching repertoire. This is an invitation to failure. To get any good at observing each other, the members of the faculty will have to find some common matters to observe. The substance and the procedures of professional exchange go together.

Supposing that a faculty is able to negotiate workable arrangements. It must them try to enact those arrangements, and stop then to ask how it is doing. The participants must make adjustments without allocating any

more blame than is absolutely necessary, and try again, so the agreement's specific meaning in action can be discovered, confirmed, and made the new norm for professional exchange. It's only a mutual observation system, but on the human scale it is a substantial undertaking.

Conclusion

New norms of induction, shared continuing education, and leadership by teachers and administrators are not likely to emerge from grudging adjustments by schoolteachers' organizations and school administrations Rather, they will be mutual accomplishments, products of an affirmative pursuit of possibilities. And so we return to the starting place. School administrators and schoolteachers' organizations share an interest and a predicament. If they approach each other wisely, they can seize the related opportunity.

The surest way both to preserve a sphere of autonomy for teachers and to hold them accountable for their performance in that sphere is to get better at helping them get better. Persons who have gained respect with regard to teaching can guide and influence a schoolteacher's conduct within her sphere of autonomy, while leaving that sphere intact. Autonomy and accountability in schoolteaching both depend heavily on its provisions for advancement: induction, continuing education, and earned leadership.

If we start from shared self-interest, if we recognize how little an effective administrative approach can vary from an effective professional one, and if we emphasize organizational norms and traditions over formalities and job descriptions, it appears that schools can serve as basic units for both profession and administration, and as bases for leadership by both schoolteachers and administrators. They would be the kind of schools that can make full use of schoolteachers' initial educations.

BOLD MOVES

Muddling Toward the Turn of the Century

Dwight Eisenhower is credited with saying, "Things are more like they are now than they ever have been." He could have been talking about schoolteaching today. He could add that schoolteaching now is more like it was when he first went to school than any reformer since has intended. He could note that the schools of the twenty-first century are just around the corner. And he could bet that schoolteaching then will be more like it is now than the recent flurry of reform initiatives would suggest.

So the times call for bold moves in schoolteaching. We need to learn how large numbers of ordinary persons can be well prepared and well organized to do that extraordinary work. We need to learn how we should exert greater collective influence on the classroom conduct of schoolteachers. Bold moves of two kinds will be needed to do that.

The first kind includes the widely-publicized and ambitious reports, laws, policies, and plans on which prominent persons stake their professional reputations and political fortunes. The second kind includes the daily attempts of ordinary people to make tomorrow a little better than yesterday. Bold moves of the second kind tend to be visible only to persons in the immediate vicinity, and to go unheralded. Even so, they will be bold moves for the persons who make them.

We have options for improving teacher education, improving school administration, and professionalizing schoolteaching. Those options can be combined in a game that everybody wins. Many bold moves of the second kind will be needed to do that. Among them is a dean's asking a superintendent to devote considerably more resources to the induction of new teachers. And a superintendent's telling the dean that she wants improvements in the teacher education program in exchange. And a union president's telling the dean and the superintendent that she wants to participate in the design of those initiatives.

The effect of the recent reports, plans, laws, and policies may depend less on their substance than on the associations that are built to realize them. As the parties to schoolteaching are a diverse lot, those associations are likely to involve some unlikely, unaccustomed, and uncomfortable alliances. As we pursue those alliances, it may help to recall that our task is not to convert the heathen, but to organize the faithful.

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AN INDIVIDUAL-CENTERED CURRICULUM

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Introduction: Two Model Schools of the Future

In planning for the schools of the future, one may envision two contrasting models, a school with a uniform curriculum and a school with an individualized curriculum. In a school with a uniform curriculum, every student will pass through the same "core curriculum" from kindergarten through high school. The early years will focus on acquisition of the three R's, while the later years will introduce targetted science and humanities courses, as well as some training in critical thinking. Methods of teaching will be quite uniform across students, subject matter, and school systems. Student progress will be monitored regularly, chiefly by standardized tests; student advancement to higher grades and teacher advancement to positions of greater authority and higher salary will be keyed to performance on these standardized measures. Those students who negotiate the core curriculum with undiluted success will gain entrance to the colleges and universities of greatest status and should eventually attain positions of responsibility and power in the society. They will tend to settle in those districts which have the best schools, and which yield the highest scorers, thereby helping to perpetuate an elite.

Consider, in contrast, the school with an individualized curriculum. From the earliest years, a diverse curriculum is available. While there will be some core subjects, students will from an early age have considerable latitude in selecting courses. Assessment of individual talents and proclivities will occur from an early age, and both subject matter and teaching approaches will be keyed to the inclinations of particular students. In lieu of standardized testing, assessment and evaluation will occur by means of student, teacher, and "outside expert" reviews of projects, portfolios, and other sustained activities. Desirable school outcomes will encompass a wide range of vocational and avocational roles, with standard academic achievement but one of a number of goals.

To most readers, both of these portraits will seem one-sided and less optimal than some amalgam of the two. In any case there is enormous pressure in contemporary society to alter schools so that their purposes are clearer and their accomplishments more readily documented. One can confidently predict that there will be many attempts to implement a new brand of school. At present, most of the signals and forces in the society favor a school of the "uniform" sort; it is easier to implement, more readily evaluated, and possibly more consistent with the current

technological orientation of our society. In my view, however, the pursuit of the "uniform model" would be a serious error--ultimately a disservice to individual citizens and to the society as a whole. On both utilitarian and value grounds, I will argue, the society ought to move toward the implementation of individualized schools.

In my own view, recent conceptual innovations in several areas of science make the achievement of an individual-centered school a viable option. It should be possible to create schools which allow students to follow their own intellectual proclivities, while mastering the materials which will enable them to become productive members of their society. In what follows I shall emphasize those lines of science which can contribute to an individual-centered school. However, it is my hope that many of the points made here will prove relevant to policy decisions, irrespective of the particular model of school which is ultimately embraced.

Classical Views of Curriculum and the Opportunities for Change

While individual-centered curricula have been implemented from time to time, the overwhelming majority of traditional schools have favored a uniform curriculum. Whether one thinks of Plato's academy or the Chinese Confucian examinations, the medieval quadrivium or the scriptural canons, the three R's of grade school or the "core curricula" of our great universities, it has been generally assumed that all individuals should study the same body of knowledge and should be assessed by similar kinds of objective instruments. Seldom was this consensus so clearly stated as in the original national curriculum study of 1893 (quoted on page 48 of Indiana Schooling for the Twenty-First Century, and attributed to D. Ravitch, The Troubled Crusade, p. 69):

> Every subject which is taught at all in a secondary school should be taught in the same way and to the same extent to every pupil as long as he pursued it, no matter what the probable destination of the pupil may be, or at what point his education is to cease.

Nor is this consensus accidental or completely ill-advised. For purposes of both efficiency and equity, there is much to be said in defense of the Chinese eight-legged examination or the College Board Entrance Examinations.

There is a less happy side to this practice. So long as a uniform curriculum is embraced, most individuals are destined to emerge as untalented. Not only is there little room at the top; but standardized regimens tend to favor individuals who exhibit certain intellectual profiles, ones which may be valuable for the aforementioned curricula but need not signal success outside the scholastic setting.

It is therefore salutary to attempt a "thought experiment" where such standardized means of assessment would be banished from existence and where, in addition, it would be impossible to reconstitute them. Would education immediately cease to function? Of course not. In human history there have been many alternative models of learning, including apprenticeships, mentorships, on-the-job training; and in the contemporary world we utilize simulations, in-basket/out-basket techniques and other means of assessment which are drawn from the world beyond the walls of schools. Within our school systems, I submit, we have proceeded much too far in the direction of standardized means of assessment, whose convenience and reliability far exceed their validity.

One may well recognize the appeal of a more individual-centered or more pluralistic educational approach, and yet question whether, especially in a period of enhanced accountability, there is any reasonable possiblity for implementing such an approach. I would point to two promising trends. First of all, as a result of recent findings in cognitive and neural science, it has become apparent that human cognition is multi-faceted and that it is inappropriate to subject all individuals to the same curricula, modes of teaching, and forms of evaluation. Second, because of technological innovations, among them the widespread dissemination of the computer, it is now feasible to implement far more individualized forms of instruction and assessment and in the process to engender a populace which is suited to and competent in its vocational and avocational roles.

Findings from Cognitive Science

Over the last few decades, scholars from a variety of disciplines interested in human thought have banded together to found a new interdisciplinary pursuit called cognitive science (Gardner, 1985). A principal stimulus to these efforts has been the growing prominence of the computer--a device which not only aids research but which also supplies a rich conceptual language and fertile models of human thought. By combining the methods of cognitive psychology, the analyses of specific subject matters (like linguistics), and the simulation power of the digital computer, cognitive scientists have produced reasonable models of several forms of human thought. And, more relevant to present purposes, there has been increasing interest in education among cognitive scientists, and welcome intercourse between basic researchers whose primary loyalty is to the scientific laboratory and applied researchers whose work is rooted in the classroom.

It would be inappropriate--and in any event impossible--to summarize the major findings of cognitive science in this essay. It is germane to point out that many issues within the field are hotly debated and will remain unresolved for years to come. However, it would be relatively uncontroversial to make the following points of relevance to education.

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Human knowledge is highly structured and can be conceptualized at many levels of complexity. Across a variety of domains, from chess-playing to medical diagnosis, it is possible to delineate a series of stages, spanning the gamut from the rank novice to the world-class expert. There are certainly some parallels across these areas, some forms of thought which recur across different subject areas or pursuits, yet it has become patent that subject areas or domains have their own peculiar structures and that knowledge in one area can in no way substitute for knowledge in another.

By the same token, while some aspects of intelligence may be general, it is clear that intellect itself can be broken down into many separate skills, competences, or, to use my own term, multiple intelligences (Gardner, 1983). An individual can be extremely strong in one area (talent or gift or intelligence) without there being any necessary linkage to competences in other areas. In addition to differences in intellectual power, there are also strong differences in intellectual styles. Cognitive styles can be identified at an early age and at least some of them prove quite robust (Kogan, 1976).

Researchers have displayed a great deal of interest in those cognitive abilities which may characterize the most effective thinkers or practitioners in a society. Among the areas which have been investigated are the nature of critical thinking, creative thinking, "higher-order" literacy, metacognition (the ability to think about thinking), self-knowledge or "intrapersonal intelligence"--the ability to devise an effective model of one's own abilities and aspirations and to use this model as an effective guide to action (Nickerson, Perkins, and Smith, 1986).

While each of these higher order abilities has been elucidated to some extent, researchers have yet to determine to what extent skills prove specific to certain subject matters, how much transfer can be expected to another area, and how much aid is needed before transfer takes effect. To choose a concrete example, if an individual is able--through innate gifts or training--to think critically in the area of mathematics, how likely is it that the individual will evince similar critical thinking skills in music, or history, or literature? And if that individual does not initially exhibit critical thought in one of these remote areas, how much so-called "saving" occurs when attempts are made to bolster his critical thought in the second area of discourse?

Beyond the intrinsic interest of the study of mind, the educator may well question which facets of cognitive science are relevant for the classrooms of today, or at least the schools of tomorrow. To begin with, there is the documentation of different mental faculties or abilities,

which could be enhanced (or allowed to atrophy) in schools. These mental abilities may well be configured in ways which are remote from the traditional curriculum, which might even interfere with the fostering of human intelligence(s).

A second dividend of cognitive science is the devising of quite specific models of how thought processes occur--models so specific that they can even be implemented on a computer. These models can provide the teacher with techniques for analyzing the ways in which lessons are effective and the ways in which particular students are tackling assignments. Thus, as a single example, the program BUGGY simulates the kinds of mistakes made by young children who are learning to subtract. (Brown and van Lehn, 1982.) Finally, the considerable attention devoted to higher level thinking skills suggests leads for teaching these effectively in the classroom--whether it be devoted to uniform or individual-centered curricula.

Findings from Neuroscience

Even as investigators interested in the mind have begun to work collaboratively, so, too, researchers interested in the brain and other parts of the nervous system have undertaken intensive joint investigations. Though study of the brain is in some ways yet more remote from classroom practice, important principles have emerged which should eventually exert significant impact on schooling.

The pluralistic view of mind which has emerged from cognitive science is strongly reinforced by studies of the organization of the brain. Investigations of cognitive capacities after damage to the brain reveal several distinct faculties of mind, which can be destroyed or spared in isolation from one another. Such findings are among the most persuasive lines of evidence in support of a theory of multiple intelligences and prove difficult to square with more conventional unitary views of intellect (Gardner, 1983).

Complementing studies of adult brain-damaged individuals, are studies of children with congenital learning disorders or pathological conditions like autism, as well as children with unusual and/or special talents, as found in the prodigy. These lines of investigation document that the nervous system of the young child is far more flexible or "plastic" than that of the adult; and it is possible to compensate for even widespread brain damage, provided that the damage occurs early in life and the circumstances for recovery are otherwise favorable. Nonetheless, even in the young child, patterns of brain specialization are already discernible and in some respects immutable. This situation implies that young children will not exhibit the same cognitive profiles, that some of them

will experience extreme difficulties in mastering certain kinds of materials, and that instructors must be extremely attuned to the kinds of cognitive styles and preferences for materials which characterize children with learning problems (Caplan, 1980; Geschwind and Galaburda, 1986).

While the details of cognitive and neural studies will matter tremendously to specialists, the educator interested in the implications of new findings has a somewhat different agenda. First of all, it is important that the educator be familiar with the principal lines of study and conceptual frameworks so that she can evaluate them properly. (Widespread ignorance has fueled many of the frivolous applications of left-brain, right-brain distinctions--see Gardner, 1982). Second, she will be especially interested in those findings which seem to emerge in both cognitive and neural investigations. In this regard, the increasingly persuasive evidence for a multiplicity of abilities, each with its own neural underpinnings and its specific information-processing characteristics, is probably the most important lesson from contemporary science. These findings call into increasing question the viability of a uniform curriculum and make urgent the devising of more individual-centered plans of study.

The Child as Learner

Whatever their brilliance and compellingness, most studies of cognition and the brain operate at a level of analysis more microscopic than that which proves useful to educators. So to speak, researchers are developing models at the "sub-personal" level, while the teacher or administrator is concerned with the "personal level." Fortunately, some scientists take this level of analysis as their primary concern and they have helped to supplement our picture of the child as learner.

Reacting to the behaviorist portrait of the individual as a passive responder to stimuli, nearly all contemporary workers now conceptualize the child as an active and purposeful agent, intent on exploring his environment and acquiring new and useful information. Obviously the educator has a particular mission to capture this attention and interest for scholastic concerns, but she can begin with the premise that, except under conditions of gross pathology, there is interest which can be mobilized.

What factors prove relevant to the motivation of a youngster? As a start, an activity muat be seen as having some relevance to the individual's world. That relevance can be conveyed in many ways, but in its absence, any kind of learning will prove an uphill battle. It is sometimes maintained that any individual can be interested in any activity and yet it seems likely that individuals can most readily be engaged in those activities for which they have some talent or early inclination.

Any activity needs to be reinforcing, and it is far more reinforcing to engage in an activity in which one makes progress and for which one receives intrinsic or extrinsic rewards than an activity in which progress proves elusive or even impossible. A proper arrangement of the contingencies of reinforcement will exert some effect on whether progress is made; but, unlike lower organisms, human beings are quite aware when progress is slower (compared to that of peers) or when progress seems contrived. For all of these reasons, it is important to match individuals with activities for which they have some proclivity (Amabile, 1983; Gardner, 1983).

Individuals choose to remain with activities when these pursuits yield a sense of achievement, enjoyment, or "flow." According to Csikszentmihalyi (1975), it is vital for skills to stand in rough correspondence to the challenge posed by an activity. In the event that his or her skills are inadequate, the individual will feel inadequate and anxious; in the event that the skills are excessive, the individual will feel over-confident and ultimately bored. Some individuals are able to monitor their own progress through an area and to alter challenges so as to maintain flow; but clearly there is plenty of room for the sensitive educator to increase the possibilities for flow activities.

While flow experiences are desirable, and perhaps necessary over the long haul, they cannot be counted on as a daily diet or a daily reward. Accomplishment in most any area requires steady work, which inevitably harbors its share of tedium and frustration. Some knowledge of the long-term consequences of regular daily practice can help to sustain effort. But it is equally important to develop habits of practice and drill which will allow an individual to return to an activity without excessive self-examination or self-doubt. In traditional societies, such rote activities seem to have been accepted without much challenge. But in contemporary "post-industrial" society, such willingness to drill can by no means be taken for granted. It is therefore crucial to provide scaffolding: supports in terms of a value system, peers, and elders who will participate along with the child; well-spaced rewards and periods of relaxation; a feeling of accomplishment and direction. A belief that one's own efforts can make a difference may also encourage participation rather than abandonment (Bloom, 1984; Dweck and Elliot, 1983; Stevenson et al., 1986). The student's conviction that he is a worker, and not just an object, doubtless contributes to long-term commitment (see accompanying essays in this volume).

Scholars probing the individual mind or brain, and scholars of personality and motivation, often employ different research paradigms and have contrasting disciplinary allegiances. Nonetheless, their contributions are importantly complementary and need to be taken into account by all educators. In the picture I have presented here, there is

latitude in the kinds of curriculum presented and the kinds of learning approaches which are available. Much of the art in effective teaching lies in motivating a student to pursue a subject matter or content over a significant period of time; and that motivation may rest in significant measure upon determination of the particular skills, proclivities, and motivations which characterize that student at that particular historical moment.

Rethinking Education: New Perspectives on Assessment and Curriculum

The connections between science and practice are never direct; considerations of feasibility as well as particular value systems always form part of the picture. Certainly one could review findings from science and come up with a summary different from the one I have presented; or one could read the literature in a similar way and yet, when invoking an alternative value system, come up with alternative recommendations. It is for these reasons that I have been explicit about the kind of educational environment which I seek.

As I conceive it, educational practice in the United States has been dominated by a curriculum which we have inherited from the past--chiefly through accidents of history--and by a view of learning and assessment which is similarly ancient and remarkably free of nuance. As I've already noted at the beginning of this essay, strong political pressures point toward a continued pursuit of this course. However, it is possible to envision a radically different kind of educational environment--and therefore appropriate at this point to flesh in the picture of the individual-centered school. In doing so, I rely heavily on work done in conjunction with my colleagues David Feldman (1980, 1986), an educational and developmental psychologist at Tufts University with a special interest in the structure of different domains of knowledge; and Mihaly Csikszentmihalyi, a social psychologist at the University of Chicago, who has been investigating the nature of those social fields in which any kind of learning must take place (see Csikszentmihalyi and Robinson, 1986).

To characterize adequately any situation of learning, we contend, it is necessary to take into account at least three vantage points:

> 1) the particular knowledge capacities of the person--in my terms, his profile of intelligences and cognitive styles. From shortly after birth, individuals can be distinguished from one another in terms of their particular cognitive strengths. Assessment should be geared toward identifying these strengths and using an individual's current cognitive profile as a basis from which to make educational recommendations and choices.

> 2) the structure of the domain of knowledge at a given historical moment. Every society contains many areas of study and competence in which an individual can engage, ranging from academic disciplines like history or computer science, to games like chess, to crafts like embroidery. Distinct levels of competence can be defined in each of these areas. Moreover, with time the levels can undergo reorganization. This knowledge can be conceived of as existing apart from the individual (cf. Popper's [1976] World III); textbooks are prominent repositories of the current status of a domain of knowledge.
>
> 3) the social envelope or field within which progress occurs in a particular area or domain. The field includes the range of roles which are relevant to practice within a particular culture, as well as institutions like schools, professional organizations, awards committees, publicists--in short, the range of paraphernalia devised by a society so that certain individuals can achieve positions of power and influence within a culturally defined area of expertise.

While we sometimes use the same terms to refer to intelligences, domains, and fields, this trio of concepts actually denotes different realms of experience. A musician may be born with a high degree of musical intelligence (as well as other intelligences). At any historical point, he will have attained a level of knowledge which places him at a certain stage or level within the domain of music (more probably, within a subspecialty like jazz improvisation, or classical violin performance). Then, from the perspective of his culture, that individual will have the opportunity to listen to other performers, study with certain individuals, participate in competitions, deal with impresarios, perhaps have an article written about him for a magazine or an encyclopedia--all activities occurring within the field of music. Entirely analogous delineations are possible for the range of end-states and areas of knowledge which exist within a given period of time with a given culture.

Until this point, my discussion could be applied to any study of human activity--but it is now germane to consider its relevance to the schools of the future in general, and to issues of curriculum and assessment in particular. In brief, it is my view that schools ought to be restructured in such a way that they permit a constantly evolving portrait of an individual's particular profile of intelligences, styles, interests, and motivations. At the same time, the schools should serve as repositories of the most accurate information about the range of domains which exist in

the society; this information should be so organized that it is relevant to education at specific age and expertise levels and with particular societal ends in mind. Finally, it is important for the educational system to permit a ready interplay between the domains, as taught in the schools, and the relevant representatives of the field, as they exist in the wider society. Only in this way can the purposes for the acquisition of knowledge be adequately appreciated and the assimilation of the educated individual into an appropriate societal niche be ensured.

Consistent with this radical restructuring of the school, it is important to consider the new kinds of roles which educational practitioners need to assume. I envision individuals with particular competence in assessment; individuals with specialized knowledge of domains and fields--the new "student-curriculum and school-community brokers"; and a cadre of classroom specialists--teachers and master teachers-- who are able to coordinate the inputs from these experts and to draw upon relevant materials and technologies in order to design an education that is appropriate for each child.

New Approaches to Assessment

While informal assessment should be taking place regularly in the classroom, in practice assessment has generally been sharply cut off from the rest of the educational process. "Input" of information occurs for most of the year and then knowledge is tested, almost invariably by short-answer instruments, sometimes devised by the teacher herself, as often imported from an external source. The prototype of "external" assessment at the younger grades is the IQ test or a more targetted set of measures, like the California or Iowa Tests; at older levels, the College Board Entrance Examinations occupy an analogous niche.

My view of assessment is complex. On the one hand I favor quite regular forms of assessment with rapid feedback supplied to both teachers and students. It is important for individuals involved in education to receive reliable feedback on what is working and what is not, and to have an opportunity as soon as possible to effect corrections in their course. There is no substitute for regular and accurate assessments. On the other hand I am disturbed by several current trends: the increasing and excessive reliance on standardized forms of assessment, often devised under circumstances remote from those which obtain in most classrooms and most vocational settings; the resultant pressures to "teach" for the test and the sanctions imposed on those who do not so tailor their curricula; and the nigh-exclusive emphasis on the assessment of abilities which can be tapped by linguistic and logical-mathematical means. As a result of these biases, evaluation is often only loosely related to routine classroom activities, some classroom activities become excessively determined by "the tests," and capacities of other intellectual sorts are largely ignored.

In an individual-centered school, assessment will become a natural, virtually daily form of information gathering, expected by all but deployed in an inconspicuous and unobtrusive fashion. Stephen Kaagan, Commissioner of Education in Vermont, has estimated that as much as 25% of the time in the school of the future will be devoted to assessment and this figure--not provided by a member of the testing establishment!-- does not strike me as excessive (Kaagan and Wolkomir, 1986). With my colleagues I am currently involved in developing new means of assessment, one at the pre-schoool level, the other at the high school level. While both of these efforts are nascent, and details of each will doubtless change, it may be useful for present purposes to delineate the scope of these alternatives to standardized testing.

At Project Spectrum, an initiative being undertaken with David Feldman and other colleagues at Harvard and Tufts, I am engaged in an effort to describe the intellectual proclivities of pre-school children. (See Hatch and Gardner, 1986; Malkus, Feldman, and Gardner, 1987 for further details). We are working in a classroom which has been richly equipped with all manner of materials--games, puzzles, "nooks," flora and fauna--capable of mobilizing children's diverse intellectual capacities and styles. Supplementing this enriched environment are more specifically targetted exercises which provide rough measures of skill levels in approximately two dozen intellectual realms, ranging from music to narrative to social competence.

Through regular monitoring of the child's activities in the daily classroom, and through administration of these ancillary exercises as indicated, we are able to secure a tremendous amount of information on the intellectual propensities and styles of each child. This information is then culled into a Spectrum Report, an essay of two or three pages that serves as a portrait of the child's distinctive intellectual patterns, focussing on areas of strength but also delineating areas where the child is less proficient. A crucial part of the Spectrum Report is a list of suggested activities which could be carried out by the child at home, in school, or elsewhere in the wider community. Rather than simply indicating where the child "stands" at this moment, then, the report serves as a guide to the kinds of activities in which a child with this "spectrum of abilities" might profitably be engaged. We hope that, instead of simply serving to rank or pigeon-hole a child, such a report may actually help him and his family think through an optimal educational regime.

As should be evident, the philosophy of Project Spectrum differs dramatically from that of other assessment efforts involving young children. Rather than providing a single measure of intelligence, or a set of "pre-reading" or "pre-math" indices, the Spectrum approach attempts to provide a holistic and balanced view of the child, one which covers the

full gamut of intellectual propensities. Rather than tapping linguistic and logical-mathematical abilities, or assessing other abilities through the "window" of logic or language, the project deliberately assesses a capacity directly, in terms of its own constituent skills. Thus musical abilities are assessed by having children sing or play with Montessori bells; social abilities are assessed by observing the leadership or mediating skills of children during situations which arise naturally in the class. Far from being set apart from other activities, assessment is virtually collapsed with curriculum and occurs on almost a daily basis. Finally, instead of a focus primarily on ranking and on deficits, this effort focuses on ths identification of strengths and the laying out of options for building upon these strengths. If the goals of Project Spectrum can be achieved, we are hopeful that some of these techniques and portions of this philosophy may "trickle up" to the elementary grades.

With colleagues at the Educational Testing Service, my associates and I at Harvard Project Zero are engaged in a parallel effort to devise new means of assessing artistic potential and competence at the secondary school level. We are agreed that, whatever the utility of standardized testing for the traditional academic parts of the curricula, such instruments are inadequate for assessing strengths in areas like imaginative writing, musical competence, or skill in the graphic arts.

An initial realization which has strongly colored our approach is that most students have little if any practice in such artistic activities. As a result direct assessment of potential or achievement is not a feasible undertaking. It is instead necessary to devise activities of intrinsic interest, which will sufficiently engage students over a significant period of time, so that their degree of talent can ultimately be assessed. As in Project Spectrum, then, we have perforce become involved in curriculum development. We are designing engaging materials in the areas of writing, drawing, and music. These richly-afforded materials should mobilize the perceptual, productive, and "self-reflecting" skills of students and, in the process, reveal something about idiosyncratic strengths and potentials of individuals.

The ARTS PROPEL project (an acronym for Production, Reflection, Perception, and Learning) differs most profoundly from standardized assessments in the kinds of activities that we will be evaluating. Instead of using short-answer kinds of tests, we will be engaging children in large-scale projects, which may last for weeks or even months. These projects in turn will be collected in portfolios, personal records of the steps through which the student has passed in her various projects; across the pages of this portfolio the student will record her initial aspirations, procedures, first sketches and revisions, evaluations along the way, comments of other individuals, and, to conclude, a description of projects which might grow out of the one that has just been completed.

Portfolios will serve as living, evolving records of the student's own cognitive and personal involvement during the course of various projects. In addition to documenting one's own projects and products, portfolios can also serve as a kind of "commonplace" record: the portfolios can encompass objects and experiences produced by other individuals which are particularly prized by the student herself.

While portfolios already constitute an entrenched part of the admissions process in arts schools, they have not been widely used in regular classrooms for regular children. Nor for the most part have they served as a "process record" of an evolving enterprise. We believe that the preparation and maintenance of such portfolios will not only engage the student's full range of skills, but will serve as a valuable record of the student's sense of purpose, commitment, and self-knowledge. Of course, the challenge to assessment inheres in the ability of the research team to come up with valid and reliable means of evaluating these portfolios. It is our hope that we will be able to devise means whereby reliable evaluations can be carried out by three disparate audiences: the students themselves, their classroom teachers, and external review boards, including college admissions committees. To the extent that the latter goal is successful, one can envision a time when a portfolio could be submitted in addition to, or in lieu of, standardized entrance examinations. Moreover, to the extent that these pedagogical experiments prove workable in the arts, they might well be transported with profit to more traditional areas of the curriculum.

Once again, the procedures being devised in the ARTS PROPEL project differ dramatically from those used in ordinary classrooms. Instead of moving toward ever more streamlined objective assessments, our project is garnering holistic samples of the student's work, as it evolves over a significant period of time. Instead of relying on linguistic snd logical skills, this approach allows students to exhibit whichever blend of intelligences may be salient for them and, in particular, those intelligences which have been neglected in standard curricula and standard testing. In contrast to approaches which emphasize the traditional disciplines, this approach reveals subjective and often deeply personal kinds of commitment and reportage. Finally, again in contrast to most other forms of assessment, this approach centers on the building of skills, attitudes, and traits which should prove of use to the individual, irrespective of the judged success of the particular projects in which she has been involved. Indeed, as much can be learned from a failed project as from a brilliantly executed success.

Even if these alternative approaches to assessment have appeal, the question arises about the feasibility of implementing them on a large scale. After all, there is a vast difference between pilot projects, supported by grants and involving a trained research staff, and

"self-supporting efforts" which can be carried out in ordinary schools by ordinary teachers. We are not insensitive to this problem. From the start we have been working directly with classroom teachers and we expect to be devoting the final phase of our "development" projects to the issue of transportability to "native sites". Moreover, in each case, we expect to delineate a set of models, ranging from those which can be carried out in a fairly casual manner by a single classroom teacher to those which would involve far greater (and far costlier) forms of intervention.

In my own view, these novel forms of assessment can only be implemented successfully on a wide scale if two conditions obtain: 1) it proves possible to train a new cadre of experts in these forms of assessment; and 2) school systems are willing ultimately to incorporate such individuals into their permanent staffs. It will be crucial for these assessment specialists to work closely with curriculum experts, for it is in interaction between these team members that appropriately individualized forms of instruction and learning are most likely to be fashioned.

The Student-Curriculum Broker and the School-Community Broker

Even a century ago, it was already becoming clear that individuals could not hope to become expert in all areas of human knowledge. The ideal of the Renaissance man, the universal expert, the liberally-educated person was beginning to recede. Nowadays even within specific disciplines, such as physics, economics, or the law, no single person can hope to master all the principal subspecialties of the field.

Just as we have come to acknowledge the impossibility of a universal education, so, too, we are now becoming familiar with the notion that individuals do not necessarily master subject matter in the same way. Not only individuals with frank learning impairments require special forms of instruction and individually-designed strategies; each of us has idiosyncratic learning styles and strengths and can benefit from pedagogical approaches which speak to our particular configuration of intellectual propensities.

These two situations--the imperative for some form of specialized education, and the desirability of teaching which takes into account an individual's cognitive profile--call for a radically different approach to education. It no longer makes sense for everyone to learn the same materials in the same way: and it becomes important to devise means for helping students and teachers to discover the particular curricula and the particular pedagogical approaches which are most suitable for each individual. To attend to these missions, I call for the creation of two new roles: the student-curriculum broker and the school-community broker.

While not an expert (necessarily) in particular curricula, the student-curriculum broker is familiar with the range of curricula appropriate at a particular age and with the family of teaching approaches which might prove effective for given curricula with selected children. Aided by technological resources, ranging from computerized files of activities to instructional programs especially crafted for certain kinds of learners, the broker attempts to devise a curriculum (or, more precisely, a set of curricula options) which can be considered by the child, his parents, and/or his teachers. And the broker works together with teachers and with the assessment specialist to ascertain whether the plans which have been devised are effective and, if not, consults on the optimal means for refashioning the plan.

It may be useful to sketch out the approach of the student-curriculum broker in terms of the framework which I introduced above. The broker begins with knowledge of the child's intellectual proclivities and styles, as measured (perhaps) by the techniques utilized in Project Spectrum. She next considers the range of areas of knowledge or domains which are suitable for students of this particular age, taking into account areas previously studied by the child, his own preferences, and the expertise of teachers and others in the community. Having collated all of this information, the broker then lays out several suggested lines of study and activities, and reviews them with all of the interested parties designated above.

The school-community broker carries out much the same kind of matching operations, but does so within the wider community. Whereas the student-curriculum broker works chiefly within the confines of the school, the school-community broker fixes particularly on those opportunities which are unavailable in the school, but which can be seized at home or in the wider community. The school-community broker has available considerable information about mentorships, apprenticeships, organizations, clubs, and other institutions which can provide opportunities for students who exhibit particular cognitive interests, strengths, and styles. It is her job to help students to effect the appropriate connections to such institutions and to make sure that the connections are in fact working effectively. While the broker owes allegiance to all students in the school, there is little question that her chief services will be provided for those students who exhibit unusual cognitive profiles, ones which the school (as currently constituted) cannot readily handle.

To flesh out the description of the school-community broker, let us consider a ten-year old student who stands out in terms of her musical and her linguistic abilities, while being weak in certain spatial and personal skills. (Of course I am using short-hand terms for complex and

multi-faceted capacities.) Given the considerable linguistic emphasis in the child's classroom, the broker will search for sites where the child might pursue her musical gifts. This may include weekly recorder lessons in school, as well as an optional composition class being offered on Saturday mornings at the community arts center. To provide some bolstering for her spatial skills, the broker will seek out some spatial exercises which parents can carry out at home with the child and will also suggest a summer camp which features orienteering and sailing. The personal awkwardness can be lessened by having the child help out with gymnastics in the kindergarten class, under the guidance of an intern. A special assessment of personal skills will be undertaken following this "apprenticeship in the kindergarten." Finally, as a means of determining whether there might be a productive confluence between the linguistic and musical skills, the broker recommends a few recent records of musical comedy to which the child might enjoy listening; and, with the cooperation of a community drama specialist, the broker devises some activities which feature the editing of an incomplete libretto. The drama specialist agrees to meet with that child several times over the next year to review her response to these libretto challenges.

To be sure, this example is fanciful in a number of respects, and is more reminiscent of a wealthy suburban community than an urban ghetto school. It is important, however, to focus on the conceptual framework which underlies such a broker role. Whatever difficulties may exist in bringing it to fruition are matters of practicality and not of principle. We already possess means for assessing many intellectual strengths and weaknesses, describing cognitive styles, and monitoring changes in these areas. It would certainly be possible within any community to collect and make available information about various learning opportunities, apprenticeships, mentorships, clubs, software, hardware, books, tapes and the like. A parallel inventory can be undertaken of the particular skills and abilities possessed by classroom teachers and by others who are willing to work together with students. To be sure, orchestrating these forms of knowledge, and bringing them to bear in a set of useful recommendations for individual students will be a challenging task--one that will not be perfected overnight. It may necessitate the contribution of community resources by local public and private agencies, yet, such an "individualized" education is certainly worth attempting to implement: even if initial implementations are flawed, they are still likely to prove relatively useful for their target audiences.

In part the success of the specialists and brokers will depend upon the extent to which their roles can be systematized and rationalized. If every student turns out to be completely different from every other, the brokers' tasks will be overwhelming. It is therefore important to ascertain whether there may be families of suggestions, which can be used

in relatively constant form for several individuals. My own guess is that there will prove to be a few dozen principal intellectual profiles, perhaps 50-100 domains of knowledge, and 100-200 roles or end states which might be brought to bear in any particular set of recommendations. To be sure, these are large numbers, which allow a dizzying number of permutations, but they are still manageable. Particularly with computer programs designed to aid in brokering and assessment, it seems feasible to come up in a reasonable period of time with recommendations for individualized education which will prove genuinely useful.

Teachers in an Individualized School

It has always been the teacher's primary role to introduce her students to the intellectual domains which are principally valued by the society: basic skills like reading and writing in the elementary grades, traditional subject matters like history or biology at the secondary level, and academic subspecialties during higher education. Because demands on teachers have steadily increased over the years (even as resources and prestige have often been reduced), it has become easy to lose sight of this central mission.

In my vision of the school of the future, many of the newly imposed aspects of teaching would be taken over by other kinds of specialists, such as the assessors of potential and achievement and the curriculum and community brokers introduced above. This division of labor would free the teacher to do what he or she ought to be doing: presenting the accumulated knowledge and skills of the past in appropriate ways to students so that they can build upon this legacy in the future.

Assuming such a model, I would anticipate the following kinds of changes in the teacher role. First of all, demonstrated expertise in the domain would become the primary criterion for entrance into teaching and for advancement in the field (cf. Shulman, 1985). Second, teachers would develop expertise in various approaches to the subject matter; either they would specialize in an approach deemed appropriate to certain kinds of students (e.g., dyslexic students), or they would develop an arsenal of techniques, which could then be deployed appropriately for each kind of student. Thus, knowledge of "pedagogical styles" would be wedded to expertise in "domain knowledge."

I also envision a new form of "master teacher" who would work regularly with the other kinds of specialists. The master teacher would have four major assignments:

1) to monitor novice teachers, with particular attention to their approaches to subject matter and their teaching techniques;

2) to keep abreast of new findings in the area of teaching and to disseminate them to other members of the school community, ranging from principals to apprentices;

3) to collaborate with the curriculum, community, and assessment specialists in designing programs of study for individual students and in making sure that the appropriate teachers and sites were available for each student;

4) to intervene when the program is not successful and to suggest alternative regimens for the student.

Clearly, the role of both teacher and master teacher would be extremely important in this new scheme. Teachers would have the primary responsibility for disseminating knowledge and would be judged by their effectiveness in this central task. Master teachers would be the school generalists, having as their assignment the orchestration of the activities of curricular, community, assessment, and domain specialists and ensuring that the methods being used are current. Anyone capable of carrying out these functions would have to be a highly trained and skilled professional. Such an individual would merit the high pay and recognition which our society affords key personnel.

Implementation: Resources and Costs

At first glance it may appear as if the individualized curriculum poses complex problems of implementation and that schools would be better advised to pursue the uniform model. And, indeed, in the short run, much of the rhythm and technology of current schools fits more comfortably in the uniform than in the individualized mode.

In my view, however, it is well within the competence and resources of our society to pursue the individualized option. To begin with, the cognitive and neural sciences are both advancing rapidly and promise to yield better insights into the nature of human learning as well as the principles by which it can be enhanced. These sciences strongly support an individualized model of human cognition: it would be as short-sighted for educators to ignore these signs as for medical practitioners to ignore the most recent findings in genetics and biochemistry. The knowledge base, then, supports the individualized option.

Technological innovations furnish a second reason to pursue the individualized option. While assessment, brokerage, and teaching will all continue to rest on high quality human involvement--very happily, in my view--there is no question that much of the tedium associated with

these processes can be alleviated by exploiting computers and other related interactive and information technologies. By the same token, the important "matching" of student with appropriate domain, field, community activities, etc., can all be aided by readily imagined forms of technological support. At a time of technological efflorescence, we would be ill-advised to ignore the "freeing" implications of these extensions of mind.

The recent surge of interest in the professionalization of the teaching profession provides a welcome opportunity for the introduction into the classroom of new forms of expertise. Graduate programs in assessment and in "brokering" can train a new cadre of specialists who will assume charge of these important areas. School systems would have to provide funds to create permanent positions, but it might be possible to share the experts among schools and, at least initially, to secure private funding to support these valuable new specializations. Nationwide efforts (of which the current collective monograph is a tiny instance) are already underway to upgrade the quality of teachers: such efforts would certainly help to create the cadre of gifted specialists and teachers for whom I called in the preceding section.

It seems at least possible, then, to implement an individualized system along the lines sketched in this paper. To do so would be to follow a path consistent with our deepest national and humanistic values--a path which does not attempt to legislate what is right and what all must follow, which allows every individual to follow a path appropriate to that individual, and which promises to foster the greatest range of human talent and resourcefulness.

The contrast with Japan is instructive here. Japan has been quite successful in following a relatively uniform model, but this model is far more appropriate in a society which is, in fact, among the most homogeneous in the world today. The genius of our country has always lain in its heterogeneity. We need (and merit) an educational system which exploits that heterogeneity to the fullest.

Failure to implement such a system has costs as well. First of all, there already has been much loss of human talent. When all are measured by the same yardstick, most are destined to fall short, to feel inadequate, to dedicate less than their full talents to their vocation. At a time when we are deeply engaged in competition with many other parts of the world, this is an unpalatable alternative. We need to embrace an option which fosters engagement and development of diverse talents. Such a model will not only make us more competitive: it will enhance the possibility that we can solve the most pressing problems faced by all of humanity, including the not insubstantial problem of human survival.

There are risks involved in the adoption of the individualized model. Perhaps the most prominent is the danger of premature "streaming." If an individual is marked at an early age as talented in one or another area, there will be a temptation to direct that individual increasingly along a single line of growth--a decision which may prove to be ill-founded on scientific grounds and destructive on personal grounds. In our own work we attempt to guard against this possibility by delineating areas of strength and weakness and by offering suggestions for activities which bolster weaknesses as well as activities which build upon strength. The emphasis on different styles of learning may also make accessible to individuals domains of knowledge which might have seemed inaccessible to them. Nonetheless, we must recognize the potential abuse of this model and build safeguards against it.

A parallel problem inheres in the possibility that an individualized curriculum may produce a generation of eccentrics who lack a common culture. Again, there is nothing intrinsic to an individual curriculum which undermines a common culture; yet as a practical matter, any method which highlights individual gifts and inclinations will produce a more differentiated and less uniform population. Nonetheless, a number of important steps can, and should be taken, lest individualized education produce an even more fragmented population. First of all, there needs to be some "core curricula" elements which every student must master. In addition, there should be certain common educational activities in which all students must participate. Through addressing civic and ethical issues within the walls of a single class, which contains students representing the range of individual specializations, the possibility of a common heritage may yet be sustained. Indeed, it has been through the very diversity of American society that the strength of our common links has previously been endorsed. Given the even greater heterogeneity in schools of the future (see Hodgkinson essay in this volume), such regular rites of confirmation become more important than ever.

Finally, it may be desirable to alternate periods of intense specialization and "depth learning" with periods of more extensive "breadth learning." To some extent this alternation can occur during the school year, with students spending blocks of time in concentrated modules, followed by periods of time devoted to wide ranging exploration. Even more important, there ought to be oscillations in focus across stages of development. During the first years of life, for example, youngsters need to have the opportunity to engage in breadth. The years of middle childhood are an excellent time for depth immersion, but the onset of adolescence calls for a return to breadth of experiences. The contrast between the breadth of college and the depth of professional study is yet another manifestation of this intellectual dialectic. Such a cycle, entailing both breadth and depth, may be the best way to secure a population which has definite expertise in at least one area but also some sensitivity to the range of human knowledge and human ways of learning.

Anyone reckless enough to write about schools of the future must confront the fact that nearly all prognostications of this sort turn out wide of the mark. Education is a particularly perilous area for speculation. Schools change slowly and in ways which are often difficult to observe at the time, while the texture of American and world society has changed at a furious rate in recent decades. In this essay I have bees less concerned with what I expect will happen than with what I feel could happen and what I would like to see happen. In this sense it has been an exercise in dreaming, as much as an exercise in predicting. I hope that some of my observations will prove of utility, even to those who do not share my scientific or value orientation. And I hope that those who find aspects of the vision attractive might be moved to clarify it and, ultimately, to help to realize it.

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Guidelines for Case Study

Each grantee state is required to submit a case study of the program for which it was funded by JANUARY 15, 1988. The purpose of this case study is to detail the process and outcomes of the grantee state's efforts to bring deans and chief state school officers together to plan for the future of our schools. All case studies will be shared with other states undergoing a similar process or which plan to initiate such a process.

Each case study should contain the following elements:

1. A one-page abstract describing your project, its goals, what parties were involved, and the outcomes.

2. How were deans of schools and colleges and chief state school officers involved in the project?

3. What other agencies, parties, associations, or groups were involved besides state education agencies and schools or colleges of education?

4. Did the organizations involved provide direct financial support for the effort and/or in-kind support?

5. What differences did the project make in planning for the future of our nation's schools?

6. How many times did the project participants meet, and what were the topics of the meetings? What were the outcomes of the meetings?

7. Based upon your experience in this activity, what advice can you offer in order to establish better, more permanent, working relations between deans and chiefs and their respective organizations?

8. What aspects of your activity were most effective and productive and what aspects were least effective and productive?

9. How were collegiality and a collaborative mode established in the project? Were there any problems of "turfdom" on the part of participants?

10. What are your plans for follow-up on the project activities? How will you continue your work after the grant period terminates?

11. Can you make any suggestions for the improvement of this workbook?

Your case study should be a minimum of ten double-spaced pages. Attachments may be included.